The Electragist

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Vol. 25, No. 9 | Association of Electragists INTERNATIONAL | JULY, 1926

Ettco Announces

Ettco-Flex

Non-Metallic Cable

ETTCO has a definite responsibility to the contractors of the country—to produce and distribute (through our jobbers) any approved type of conductor that conditions may demand.

Accordingly we have produced ETTCO-FLEX—a new NON-METALLIC SHEATHED CABLE built to the same standards of quality that govern the making of ETTCO Armored Cable and Loom.

BUT—

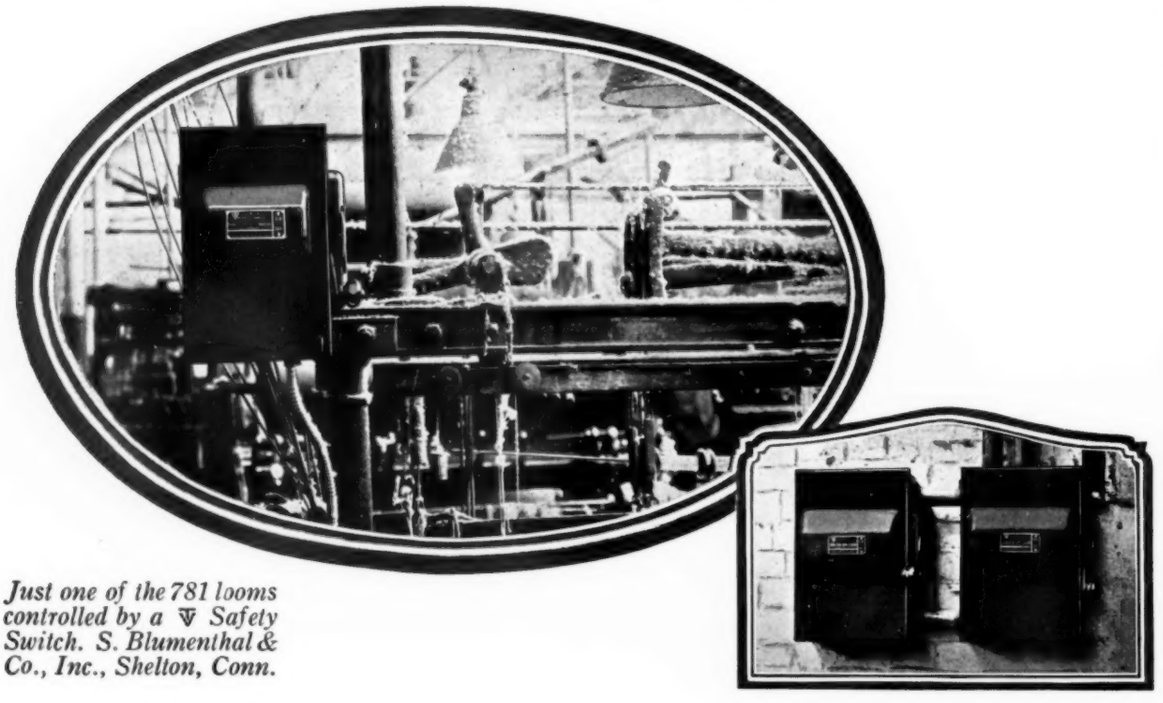
Not a foot of this product will be sold or delivered—

UNTIL—

It is **fully approved** and **labelled** in accordance with the rules and specifications of the Underwriters' Laboratories.

EASTERN TUBE & TOOL CO., Inc.
BROOKLYN, N.Y.

781 Looms Controlled by ▽ Safety Switches



Just one of the 781 looms controlled by a ▽ Safety Switch. S. Blumenthal & Co., Inc., Shelton, Conn.

▽ Safety Switches which control rows of 8 looms each.

Here is a notable installation of ▽ Safety Switches. Each one of the 781 looms is equipped with a ▽ Safety Switch and gangs of 8 looms are controlled by a master main line ▽ switch. Sidney Blumenthal & Co., Inc., makers of fine mohair velvet and other pile fabrics, think highly of the protection afforded their employees by ▽ Safety Switches and their employees value ▽ safety.

▽ Industrial Safety Switches are now equipped with new multiple knockouts like those in meter service switches. There are plenty of them so that wiring and installing is easy. So easy to knockout, and leaves the hole clean as a hound's tooth.

You ought to study No. 16C. A copy will be sent on request.

TRUMBULL-VANDERPOEL ELECTRIC MFG. CO.
BANTAM, CONN.

For your convenience stocks are carried at eleven distributing points in the U. S. Immediate service.

▽ SAFETY SWITCHES

THE ELECTRAGIST, July, 1926, Vol. 25, No. 9, $2.00 per year, 20 cents a copy. Published monthly at 100 Liberty Street, Utica, N. Y. Association of Electragists—International, 15 West 37th St., New York, N. Y. Entered as second class matter September 1, 1919, at the Post Office at Utica, N. Y., under the act of March 3, 1879.

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The Electragist

(The National Electrical Contractor and The Electrical Contractor-Dealer)

Official Journal of the
Association of Electragists—International

Vol. 25 JULY, 1926 No. 9

Regulation By Inspection and Its Results*

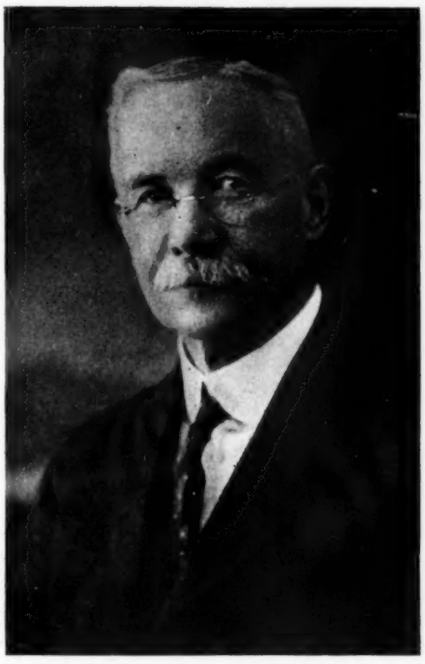
By JOSEPH C. FORSYTH
Supervising Engineer, New York Board of Fire Underwriters

A POLICEMAN in uniform properly performing his duties represents the Law in action. To him has been delegated certain authority and from him is expected certain performance in line with his prescribed duties. This authority has been given him by the people and it is to the public's interest that his services should be rendered. Regulation in any public matter is never a pleasant task, for it involves more or less arbitrary action which necessarily interferes with others in the exercise of their wishes and desires.

Any Law will at times work hardships in particular cases because no Law, if properly administered can be sufficiently flexible to meet all conditions, while to permit the Law to be violated is manifestly unfair to those who endeavor to work within the Law. Under the complex civilization in which we are living today to attempt to live without Law would result in chaos.

Such a situation would be unthinkable, for we know that under such conditions every man would be a Law unto himself. Through the process of Law, therefore, we have our liberty and while we may often chafe under it yet it is our sole defense against destruction. You may think that this is far drawn in regard to electrical inspections, but let us see if the idea is applicable or not.

An electrical inspector who is properly performing his duty represents the Electrical Code in action. Just suppose, if you can, that all authority, all control, rules, Laws and ordinances, and all electrical inspections by State, Municipal or Underwriter's Bureaus were to be abandoned! How long would it be before the materials employed and the manner of installing equipments would be such as to present sufficient hazards to life and property that either a public demand would be made for regulation or that due to the dangers of electricity the people would be driven to the use of some other and safer form of light and power? Regulation in the application of electricity is just as necessary as in the field of transportation or any other line of effort. What then has this regulation accomplished for the electrical industry? Many things, but I will only mention a few.



As supervising engineer of the New York Board of Fire Underwriters, Joseph C. Forsyth is the underwriters' inspection authority of the largest city in the United States.

1—It has been the channel through which our present standardization has been attained. Much is yet to be accomplished but we are rapidly coming to well recognized standards in nearly all devices and materials. Except for this regulation what would we have in actual practice today as to thickness and quality of insulation on conductors, the size and weight of conduit, the quality of sockets, switches, fuses, panelboards and almost any electrical device or material with which we are so familiar? I doubt if we give this matter very much consideration. There are many features, of course, which must be left to the ingenuity and desire of the manufacturer so long as the proper result is attained.

2—It standardizes construction methods and practices and provides a fair and equitable basis for competitive bidding by contractors. How would you figure a job if the methods and materials to be employed were only such as your competitor might see fit to employ? You might base your esti-

*Delivered before convention of New York State Association of Electrical Contractors and Dealers at Schenectady, June 14, 1926.

mate on the use of rigid conduit throughout, while your competitor would install flexible cord.

3—It affords reasonable safety to the public in the use of electricity and is some guarantee of serviceability to the purchaser. It took years of effort and argument to secure the co-operation of the lighting industry in the enforcement of the matter of grounding secondaries and in some sections of the country this is not yet an accepted practice.

4—It constitutes a large measure of protection for those engaged in the industry against others who otherwise would enter this field of effort because of its freedom from control. The creating of proper and necessary difficulties prevents many from engaging in it.

5—It provides, through certificates of inspection, an indication that standard construction and materials have been employed, and is a large factor in settling disputes and preventing lawsuits. The public in general has confidence in inspection departments and accepts certificates as evidence of proper installation.

Must Go Further

6—Through regulation by inspection the lives and property of the public have been safeguarded, to a degree that has never been attained in any other field of effort where equal or even a much less hazard exists. With this splendid record as a background it should be the earnest endeavor of all inspection authorities, together with the aid and support of the electrical industry, to strive for still greater results, and more complete immunity from the life and fire hazards which are inherently present in the utilization of electricity for home and factory purposes.

7—Insofar as the electrical industry has consented or has been compelled to follow the National Code there has ensued a stabilization of all products entering into the construction of devices and materials and in the methods and practices of installation work, thereby permitting quantity production in devices and materials by the manufacturers and a sense of security to the jobber and contractor, that what is acceptable today will be approved tomorrow.

The Electrical Committee has been criticized for not making rules which would anticipate future development. This is being done so far as practical. Careful study must be given and good discretion exercised in the adoption of new rules or in changing existing requirements in order to prevent undue restrictions in electrical construction and materials that would react unfavorably to the Industry. It is just as difficult to know where to stop as where to begin.

How Far to Go

A clearly defined principle must always be kept in mind which will limit the speed and direction in which we are going. That principle is the one and only purpose for which rules are enacted and inspection departments created, viz., safety to life and property. You can adopt such restrictions as to make the use of electricity absolutely safe, but in accomplishing that object you may prevent its use commercially. There is a mean to which all requirements should tend but beyond which they should not be permitted to go. An inventor conceives of a splendid idea, works it out in concrete form and forthwith importunes the inspection authorities to adopt his new born child, and so feed and nourish it that it will become full grown over night. It often becomes a difficult matter to decide just how far to go in such matters.

Assuming that the device or material submitted is a decided improvement over existing methods and that owing to the increased cost of the new development the inventor is unable to get it on the market without the support of the inspection department, how can that assistance be given? A very marked division of opinion has always existed in such matters. "Safe" is a relative term. What is safe under one condition may be unsafe under another condition. Therefore the rules must be so drawn as to discriminate between them.

To so draft a set of requirements as to make them applicable to all conditions which may arise in actual practice would not only be difficult but would tend to confusion. It therefore becomes necessary that the inspection department shall exercise judgment and common sense in the application of rules. They must be intelligently administered. Of course the rules should state clearly just what is intended to be conveyed. It is often easy to misunderstand or misconstrue a requirement.

"Which month has twenty-eight days in it?" asked the teacher.

"They all have," replied Jimmie.

A friend of mine vouches for this story.

In formulating rules the following ideas must be borne in mind. They must be as specific as possible and yet capable of being interpreted to cover varying conditions. They must be so drawn as to prevent the creating of a monopoly which can be taken advantage of by any one manufacturer. They must be sufficiently broad and general as to encourage new ideas and inventions. They must be of a character that when followed, the resulting installation will be safe, serviceable and sufficiently adequate to meet the needs of the purchaser without requiring undue cost or unnecessary expense in the original equipment or in its maintenance.

They should be capable of being understood by the average layman or mechanic and not deal in abstruse statements or theoretical formulas. The end and purpose of regulation in the electrical industry is safety. Yes, safety, but with a reasonable regard for the rights of all; safety, but with the expectation that some degree of common sense will be employed by those who distribute electricity to the public, those who install the wiring and apparatus in the homes and shops for the use of the people, and from the people themselves who utilize this service for their own purposes.

Labor's Greatest Battle

The greatest fight of the electrical trades is to keep fit and to educate the members to avoid accidents, in the opinion of R. J. Williams, of the Building Trades Council, Wilkes-Barre, Pa. A safe worker is the best advertisement any local union can have, he continues in an article in the *Journal of Electrical Workers and Operators*. Employers do not care to keep a careless workman or the man who persists in taking chances. A careless member of an organization may run the cost of an accident into a good many hundred dollars, he points out, and declares that he cannot impress too emphatically on the members of the electrical unions the need of safe practices in their work, no matter how easy the job may be. Attention is called particularly to the hazards of low voltages, considered by many to be harmless but contacts with which have often resulted in serious accidents.

Gerard Swope to Address A. E. I. Annual Convention

Program Also Gives Prominence to Electragist Speakers on Electragist Subjects—Manufacturers Promise Best Exhibit Ever Put on for Electragists

THE delegates to the twenty-sixth annual convention of the Association of Electragists, at Cedar Point, Ohio, August 23-27, will have the privilege of listening to an address by one of the leading figures of the electrical industry in the person of Gerard Swope, president of the General Electric Company. His talk on general conditions in the industry will be one of the features of the opening session. Following his address, the convention will get its four days of business session under way.

The program this year will be devoted almost entirely to the consideration of electragist problems treated by electragist speakers, who have found the answers to these problems. Some of the subjects slated for discussion are:

1. Is State or Municipal licensing of contractors needed? Under what form?

2. Should there be an "Electragist Standard for Wiring Installations?"

3. How can the big task of modernizing already wired homes be successfully tackled by the electragist?

Particular emphasis will be laid this year on the technical session which will be under the direction of Arthur L. Abbott, technical director of the association, and J. H. Schumacher, of Toronto, chairman of the cost data committee. It is planned to present a number of short papers concerning the various details of estimating methods. The effort will be to concentrate on the presentation either of new labor cost data or of new methods of estimating. At the present time there have been promised papers of this nature from Messrs. Schumacher and Abbott and from Harry C. Turnock, Cleveland; O. F. Wadleigh, Indianapolis, and C. J. Geisbush, Los Angeles.

A talk which will also tie-in with the technical sessions is scheduled to be made by Walter H. Taverner, New York City, who at the last convention received honorable mention for the 1925 McGraw Award for "His conception of the application of graphic charts to current cost-keeping on labor for electrical construction." His subject will be: "Job Control and Measurement of Labor Efficiency and Business Efficiency through Use of Graphic Charts." Full details of the completed program will be announced in the August issue.

Gerard Swope

More than ever before the manufacturers' exhibit will be of interest to the electragist this year. When it was decided to hold the meeting at Cedar Point, the manufacturers appointed a committee to supervise the details of the exhibit and make doubly sure that the show would be the largest and the most complete that they had ever staged for the contractor-dealer. In the box on this page are listed the manufacturers who have already signed up for space, there being thirty-one of them on June 23. This number will be increased

(*Continued on Page* 19)

Manufacturers Who Had Contracted for Space in the Exhibit up to June 23

A-A Wire Company
Frank Adam Electric Company
Appleton Electric Company
Asbestos Shingle, Slate and Sheathing Company
Bryant Electric Company
Bussman Manufacturing Company
Central Tube Company
Chicago Fuse Manufacturing Company
Crosley Radio Corporation
Crouse-Hinds Company
Electrical Porcelain Manufacturers Association
Electrical Record
Franklin Pottery
General Electric Company
Gillinder Brothers
Graybar Electric Company
Mutual Electric & Machine Company
National Metal Molding Company
Rawlplug Company
Reynold Springs Co. Reynolite Division
Simplex Electric Heating Company
Square D Company
Star Expansion Bolt Company
Sun-Ray Lighting Products, Inc.
Triangle Conduit Company
Union Metals Manufacturing Company
Van Cleef Brothers
Wadsworth Electric Manufacturing Company
Wakefield Brass Company
Wedge Thread Protector Company
Westinghouse Electric & Manufacturing Company

Several other manufacturers had expressed their intention to take space but at the time of writing had not contracted for it.

Red Seal Passes the Thousand Mark in Toronto

Great Momentum of Red Seal Idea Shown by Fact that, While Building Volume Has Declined, Percent of Red Seal Installations Has Increased

By GEORGE W. AUSTEN
Secretary, Electric Service League of Toronto

IN passing the "Thousand" Red Seal house mark, the Electric Service League of Toronto has struck a big stride in putting the Red Seal on a mass basis. At the middle of May, it had one hundred and forty 100 percent Red Seal builders—pledged to put a Red Seal wiring job into every house they build, until the end of 1926—and was in the process of getting more than one hundred Red Seal houses for May alone. This is a new high record for Red Seal work.

The increase in Red Seal houses in Toronto for the four months to April 30 was approximately 25 percent. The quantity of house building in that period was less by 30 percent than in 1925. According to an accurate count by the Toronto Home Builders' Association, there were 269 fewer houses under construction in Toronto on May 1 than on May 1, 1925. Yet the number of Red Seal houses is away above that of last year to date. This shows the tremendous progress of the Red Seal idea.

The Red Seal coverage of building is now about 40 percent, compared with 20 percent. The number of outlets in Red Seal houses in Toronto average 47, whereas in non-Red Seal houses of comparable size and type the average is 27. Toronto specializes in a heavy service, the specification calling for three No. 2 wires, 100 amp. switch, C condulet, and 12 in. x 18 in. distribution box, range wiring to be completed to kitchen.

Here Are Toronto Red Seal Houses, Nos. 1,000, 1,001, 1,002 and 1,003. There Are Eleven Houses Under Construction on the Block, Meaning Almost 40 Per cent Red Seal Saturation

The Red Seal has helped Toronto builders to sell their houses. Most of them add to the price of the house the extra cost of the wiring, and are content if the Red Seal brings a quick sale. Real estate in Toronto is extremely slow and hard to sell, and prices are cut in a way that would be astonishing in most lively United States cities.

Some Red Seal builders have written to the League testimonials of the effectiveness of the Red Seal as a selling argument, and the League has records of dozens of cases where the Seal was the deciding factor. Builders selling houses not Red Seal often have the buyer-occupants clamoring after them, asking "Why didn't you put a Red Seal job in this house?" Houses not Red Seal will not "stay put" after the sale if the occupants discover about the Red Seal being lacking. The League has

(*Continued on Page* 19)

STANDARD ELECTRIC HOME

"The Symbol of Electrical Protection to the Public"

Now Almost 125 "100% Red Seal" Builders

The Electric Service League takes pleasure in announcing the names of 124 Toronto builders who have signed an agreement to put a "Red Seal" electric wiring installation into *EVERY* house they build to the end of 1926. *Every House "Red Seal"*—that is the basis for the term *"100% Red Seal."* More than 250 builders in Toronto have put in one or more "Red Seal" wiring installations. Next week the *THOUSANDTH* Red Seal house will be inspected, and the wiring—meeting the requirements of the League standard—approved by the granting of the "Red Seal" certificate on behalf of the electrical industry.

The Red Seal quantity standard of wiring is designed to give homeowners ample electric service for all purposes. It includes two-ry main feed wires, of capacity ample for all purposes, range-wiring to kitchen, plenty of outlets for lighting and base-outlets for appliances, etc. This wiring standard ought to be the minimum for every home because electric cooking, washing, cleaning, refrigerating, water-heating, etc., are part of present-day household life, and ample wiring is an essential. The Electric Service League provides Red Seal inspections, certificates, etc., free to builders and the public in the interest of adequate wiring. Information on wiring plans given free.

When you buy a house, insist on the "Two-point Red Seal" of the League. It is your protection.

Elgin 4937 **Electric Service League** 302 Excelsior Life Bldg.

(A Co-operative Non-trading Association representing the Electrical Industry)

By the Middle of May the Number of 100 Per cent Red Seal Builders Listed in this Newspaper Advertisement, Had Mounted to One Hundred and Forty

How to Lay Out Power Wiring According to New Code

By ROBERT A. GOELLER
Vice-President, Hatzel & Buehler, Inc., New York

(Continued from last month)

This is the second of a series of diagrams which bring out more comprehensively the various regulations of the 1925 Code pertaining to the protection of motors and motor circuits. A study of them will enable the contractor with the motor wiring job not only to understand more thoroughly the various Code rules as applied thereto, but to select the most economical permissible type of system for various conditions of service.—EDITOR.

Diagram No. 3

Diagram No. 3 outlines a motor started at full voltage by means of a single throw switch but varying from Diagram No. 1 in that instead of standard fuses for the protection of the motor, thermal cutouts are used. This type of automatic cutout has been developed to overcome the limitations of standard fuses when subjected to sudden peak loads such as occur when the motor is thrown directly across the line at full voltage or from short overloads, and so are designed to have a definite time lag in order that such currents of short duration will not ordinarily cause them to blow. Continued overloads will blow these cutouts in the usual manner. It should be borne in mind, however, that the time delay feature creates some hazzard within the cutout due to the fact that they may permit currents of considerable value to build up where a stalled or heavily overloaded motor is connected across the line or where perhaps a short circuit or ground has occurred somewhere in the circuit between them and the motor. It is quite possible that the thermal cutout might not have sufficient rupturing capacity to interrupt these currents without injury. Therefore, it is evident that the next fuse back on the line should not be so large as to fail to relieve the thermal cutout from interrupting a current greatly in access of its designed capacity. Thus Section 809-b, sub paragraph 4, provides that "thermal cutouts shall not be used unless . . . next back on the line there are fuses of a rating with which the thermal cutouts can be used safely as indicated by the marking on the cutouts."

When each motor is fed by a separate circuit from a branch circuit power panel, the problem of placing too large a fuse behind the thermal cutouts is almost entirely eliminated, for fuses ten times larger than the capacity of the thermal cutouts are permitted when the latter have a rating between 15 and 20 amps, and thirty times larger when the thermal cutouts size ranges between 5 and 8 amps. Where thermal cutouts are grouped under a single set of fuses, this rule has to be given real consideration, but where the fuses range from 200 to 300 per cent of the thermal cutout

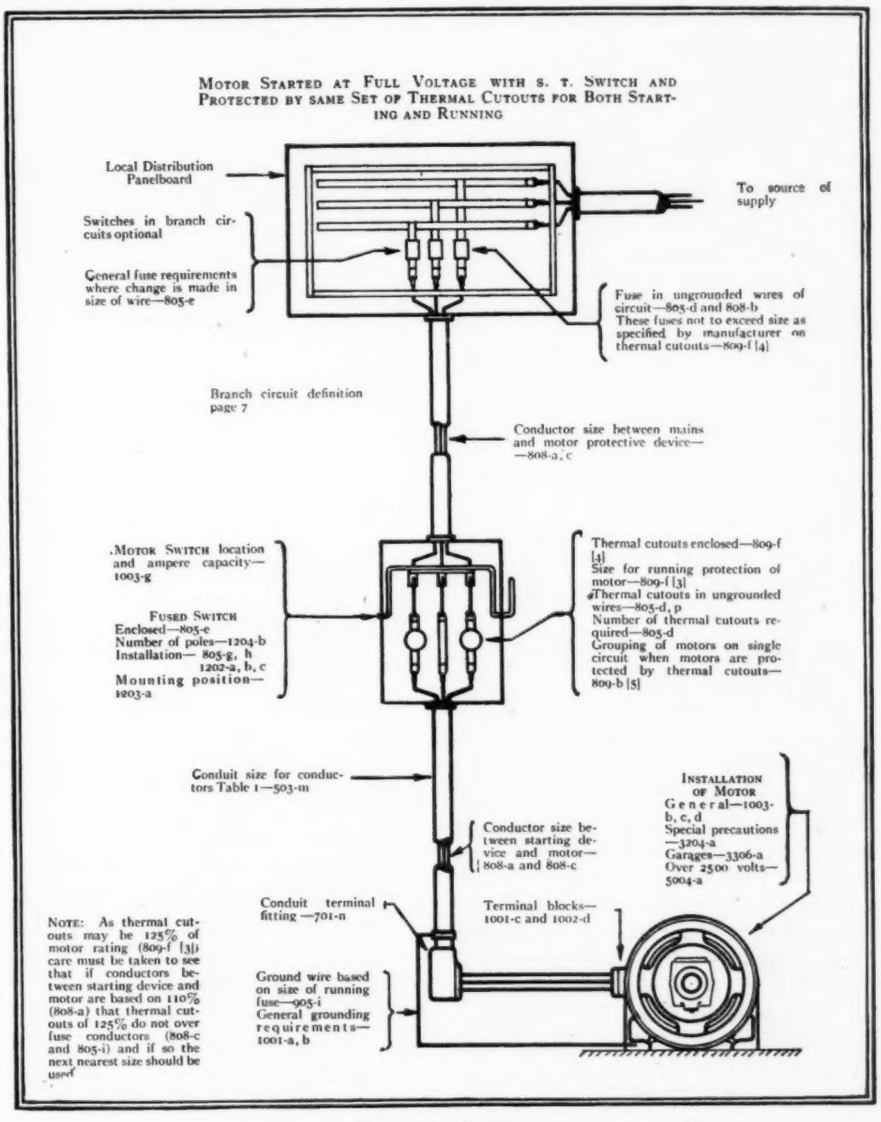

MOTOR STARTED AT FULL VOLTAGE WITH S. T. SWITCH AND PROTECTED BY SAME SET OF THERMAL CUTOUTS FOR BOTH STARTING AND RUNNING
Local Distribution Panelboard
To source of supply
Switches in branch circuits optional
General fuse requirements where change is made in size of wire—805-e
Fuse in ungrounded wires of circuit—805-d and 808-b
These fuses not to exceed size as specified by manufacturer on thermal cutouts—809-f [4]
Branch circuit definition page 7
Conductor size between mains and motor protective device—808-a, c
MOTOR SWITCH location and ampere capacity—1003-g
FUSED SWITCH
Enclosed—805-e
Number of poles—1204-b
Installation— 805-g, h 1202-a, b, c
Mounting position—1203-a
Thermal cutouts enclosed—809-f [4]
Size for running protection of motor—809-f [3]
Thermal cutouts in ungrounded wires—805-d, p
Number of thermal cutouts required—805-d
Grouping of motors on single circuit when motors are protected by thermal cutouts—809-b [5]
Conduit size for conductors Table 1—503-m
INSTALLATION OF MOTOR
General—1003-b, c, d
Special precautions—3204-a
Garages—3306-a
Over 2500 volts—5004-a
Conductor size between starting device and motor—808-a and 808-c
Conduit terminal fitting—701-n
Terminal blocks—1001-c and 1002-d
Ground wire based on size of running fuse—905-i
General grounding requirements—1001-a, b
NOTE: As thermal cutouts may be 125% of motor rating (809-f [3]) care must be taken to see that if conductors between starting device and motor are based on 110% (808-a) that thermal cutouts of 125% do not over fuse conductors (808-c and 805-i) and if so the next nearest size should be used

Diagram No. 3

rating, as they would in the type of circuit described, it is readily seen that the chief concern is the choice of a size that will not blow when the motor is started.

It will be noted that the switch is single throw and therefore the thermal cutouts are continuously in circuit both during the starting and running periods, similar to the arrangements outlined in diagram No. 1. This method of protection is applicable, however, to motors ranging from fractional HP to a logical maximum of 10 HP, although 7½ HP is often time the limit set by practical considerations, such as limitations enforced by power companies in order to avoid line disturbances.

In this type of motor installation, the conductors between the thermal cutouts and the motor must be at least 110 per cent of the name plate current rating of the motor as required in section 808-A, while the thermal cutouts may be of 125 per cent as permitted in section 809-B, sub par. 3. Therefore, there are times when the fuse size based on 125 per cent dictates the next larger size conductor than would be selected on the 110 per cent basis, the same as was indicated in the previous diagram.

The conductors between the fuses in the branch circuit power panel and the thermal cutout are required by the Code to be at least 110 per cent of the nameplate current rating of the motor, Section 808-A. Yet if this minimum were always used, it might give some trouble in finding a fuse of a size that would hold when the motor was started at full voltage without overfusing the conductors when the latter was based on 110 per cent.

In this type of installation, the starting current ranges from 200 to 300 per cent of the nameplate rating of the motor, so that fuses may be selected for the average or 250 per cent.

To thoroughly understand the examples set forth in the following, it must be first understood that the Code recognizes the practical condition surrounding starting currents and gives consideration to the fact that normally, their peaks are of short duration and that to require conductors of a size based on either R. C. or V. C. insulation for these short peak loads would tend to unnecessarily raise the cost of installation. Therefore to permit the use of a fuse that will not continually blow under the starting period and at the same time keep the conductor size down, Section 808-C permits these conductors to be selected on the basis of the conductor capacities as given in Column C of table No. 1 of Section 610, because temperature rise is negligible for the short periods of the starting currents.

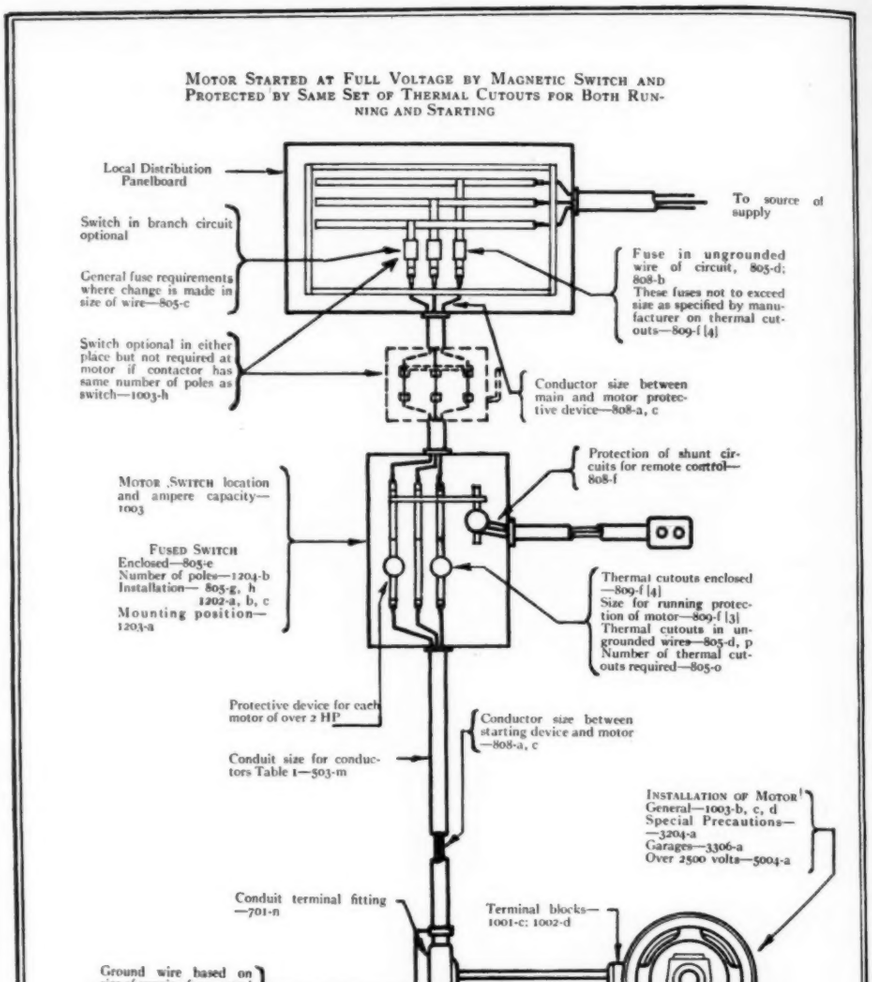

Motor Started at Full Voltage by Magnetic Switch and Protected by Same Set of Thermal Cutouts for Both Running and Starting
Local Distribution Panelboard
To source of supply
Switch in branch circuit optional
General fuse requirements where change is made in size of wire—805-c
Fuse in ungrounded wire of circuit, 805-d; 808-b
These fuses not to exceed size as specified by manufacturer on thermal cutouts—809-f [4]
Switch optional in either place but not required at motor if contactor has same number of poles as switch—1003-h
Conductor size between main and motor protective device—808-a, c
Protection of shunt circuits for remote control—808-f
Motor Switch location and ampere capacity—1003
Fused Switch
Enclosed—805-e
Number of poles—1204-b
Installation— 805-g, h 1202-a, b, c
Mounting position—1203-a
Thermal cutouts enclosed —809-f [4]
Size for running protection of motor—809-f [3]
Thermal cutouts in ungrounded wires—805-d, p
Number of thermal cutouts required—805-o
Protective device for each motor of over 2 HP
Conductor size between starting device and motor —808-a, c
Conduit size for conductors Table 1—503-m
Installation of Motor
General—1003-b, c, d
Special Precautions—3204-a
Garages—3306-a
Over 2500 volts—5004-a
Conduit terminal fitting —701-n
Terminal blocks—1001-c; 1002-d
Ground wire based on size of running fuse—905-j
General Grounding requirements—1001-a, b

Diagram No. 4

Example No. 1

Case No. 1.

Nameplate current rating for motor
10 amps. x 250% = 25 amps.
Section 610, table No. 1, column C,
25 amps. requires No. 12 wire.

Now if Section 808-C did not permit of this arrangement the conductors would have to be as follows:

Case No. 2.

Nameplate current rating of motor
10 amps. x 250% = 25 amps.
Section 610, table No. 1, column A,
25 amps. requires No. 10 wire.

Thus, the size of the conductors between the fuse in the branch circuit power panel and the starting device in the first case would be No. 12 and in the second case No. 10, while in both instances, No. 14 could be used between the starting device and motor. If a fuse rated above 250 per cent was used, the wire size would have to be figured accordingly, although it is often possible to use a fuse larger than 250 per cent because the nearest conductor size selected on the basis of 250 often leaves a margin and permits a larger fuse size without overfusing the conductors.

In this type of installation in other words, the conductors between the branch circuit power panel and the thermal cutouts do not have to be larger than the conductors between the latter and the motor, unless the fuses in the power panel have such a small margin

over the normal full load running current that they are liable to blow often and soon be replaced with larger fuses that may overfuse the conductors between the branch circuit power panel and the cutouts. The examples suggest fuse sizes that will properly take care of the motor starting currents.

Diagram No. 4 outlines a motor started at full voltage by means of a single throw magnetic switch and, as in Diagram No. 3, protected by thermal cutouts. The magnetic switch must not be confused with an automatic circuit breaker, for in this case it simply serves as a switch that may be controlled from a remote point, while automatic overload protection is provided by the thermal cutouts. In this type of starting device the additional feature of no voltage protection is provided, in that through failure of the line current the magnetic switch will drop out and the motor will not start again upon resumption of the current supply until the starting button of the remote control switch is operated again. This no voltage feature, however, is not covered by any requirement in the Code, but its advantage for safety is clearly evident.

Conductor Size

Insofar as the Code requirements are concerned in determining the size of conductors and general fuse application this type of installation is identical to that described under Diagram No. 3 with the exception that the conductors used in connection with the remote control circuit wires.

By referring to Section 808 f, it will be noted that these conductors are "considered as being sufficiently protected by the motor circuit protective device required by the preceding paragraphs of this section, provided they are suitably protected from mechanical injury and do not extend beyond the machine on which the starter may be installed." From this latter requirement it must be inferred that should these conductors be extended beyond the machine, appropriate fuse protection must be provided, although it is hardly to be expected that if the motor is protected by 15-amp. fuses or smaller, that the remote control conductors would have to be separately fused since in this case they would not be overfused. However, motor fuses larger than 15-amp., might overfuse the remote control conductors, as they are seldom larger than No. 14.

New Zealand Uniform Electrical Regulations

In connection with the trend in the United States and particularly in New York State toward concentrating under one head as much as possible the work of giving rulings on the Code, it is interesting to note, in the *Australasian Electrical Times*, that New Zealand is planning to have a central authority for this purpose. The regulations controlling the erection of outside lines, etc., for distribution of power and lighting in New Zealand are issued by the Public Works Department, and the rules for indoor installations are issued by the Fire Underwriters. These are the standard regulations.

There are, however, over eighty distributing authorities, and each issue their own by-laws in addition to the above.

At a conference, recently held, of local authority engineers, at which the Public Works Department, Federation of Electrical Contractors, and Fire Underwriters were represented, the question of the formation of a Dominion Wiring Rules Committee, who should frame all regulations for both outdoor and indoor work, was fully discussed. The Government has been asked to set up such a committee.

A. E. I. Convention

(*Continued from Page* 15)

since exhibit space has sold faster this year than at any previous convention. In addition to the exhibit the manufacturers have arranged for one of Cleveland's best known orchestras to furnish the music for the convention. This has been done at their own expense.

The annual golf contest will be staged on Monday, August 23 at the Plum Brook Golf Club, Sandusky. There will be four events, a "Kicker's Handicap," an "Alibi Handicap," the regular "Handicap Championship," and a special prize to the player whose tee shot is nearest the pin on the fifth hole. Prizes will be awarded to the winners.

Owing to the large attendance expected at the convention, the railroad passenger associations have authorized the use of the "Identification Certificate Plan," as was done last year. This permits the sale of round-trip tickets to Cedar Point at the rate of one and one-half times the regular fare when the same route is used each way. These certificates are being distributed to members at the present time.

Reservations for the convention are coming in so fast that it would be wise for those purposing to attend to send in their reservations as early as possible directly to the Breakers Hotel, Cedar Point, Ohio.

Educational Films Available for Associations

A long list of educational industrial films are available for loan to local associations gratis, according to the announcement of the Bureau of Mines, U. S. Department of Commerce. Any of the films may be obtained for showing by writing to the Pittsburgh Experiment Station, Bureau of Mines, Pittsburgh, Pa. The list includes such subjects as "The Story of an Electric Meter," "Water Power," "Story of a Storage Battery," "Story of a Spark Plug" and "Story of Power."

Toronto Red Seal

(*Continued from Page* 16)

had more than one encounter with hot-tempered builders who have been badgered by owners in houses they have built, and which are not Red Seal.

The League has had rare success in dealing with builders because it has given them, not only the advertising of the Seal on the Red Seal house, but has gone into the newspapers on occasion, with the list of names, and gives them publicity at Toronto's big exhibition, which is attended each September by a million and a half people. Its two field men have a wide territory to cover, and it keeps them and the League hustling to keep up with the mass of inquiries that come in to headquarters. Another field man, making three, may have to be added soon. The season's big Red Seal jump is only well started.

The Toronto League uses many unique methods of promoting the Red Seal idea, and some day, perhaps, may have sifted out of a mass of experiments, lines of proved action that can be gathered into a list of special methods. But the Red Seal idea is so sound and well-based that anyone can make it a success with reasonable effort and push behind it.

Contractors-Central Station-Merchants Give Window Light Show

Demonstration Initiated by Group of Brooklyn Merchants to Make Their Street Better Business Thoroughfare Has Brought Much Work to Contractors

THERE took place in Brooklyn during the latter part of May an unusual example of co-operation between contractor-dealers, the central station and the mercantile customers of both of them. It was a demonstration of good window lighting, which had been requested by the Livingston Street Merchants Association, sponsored by the Brooklyn Edison Company and installed by the Brooklyn Group of contractors of the New York Electrical Board of Trade.

It came about in this way. Livingston Street, Brooklyn, is a fairly good business thoroughfare, having about 115 stores in its length of three-quarters of a mile. However it is parallel to and just one block from Fulton street, the "Main Street" of that part of Brooklyn and in the past it has suffered by comparison with that brilliantly lighted and crowded street.

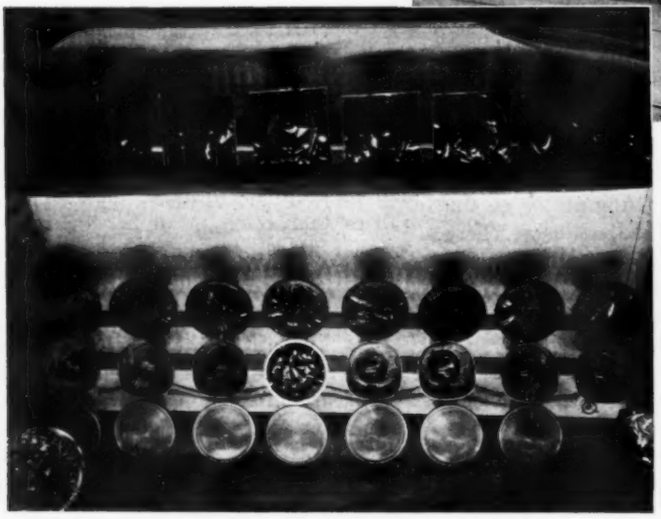
The merchants' association felt that the street was not getting its fair share of patronage and cast about for a way of inducing more people to traverse the street. The first way that suggested itself was to make the street brighter and the storekeepers went to the Brooklyn Edison Company to find out how this could be done. The first recommendation of the power company was that the street lighting be improved. This was done, the city being induced to replace the lamps in the street standards with other lamps of much higher wattage.

A second recommendation was that all the merchants on the street take advantage of the possibilities of good window lighting. The central station offered to give a demonstration of this provided the merchants would obtain the use of a store for a period of a month or so. When this had been done the contractors were called in and a window lighting installation made, similar in most respects to the one described in these pages several months ago by C. W. Kayser of the Tollner Electric Company.

The photograph at the lower left shows one part of the installation, the three rows of reflectors being at the front of the window. The window was divided into two sections, one to demonstrate moving color lighting, the other to show the effect of high-intensity plain lighting.

There were twelve combinations possible in the color-lighted window, viz.: daylight, clear and spot and footlights, blue, red and spot, green and flood, amber, blue and green, red and amber, red and blue, red and green and amber, green and amber, silhouette and spot and flood. A flasher permitted each of these, in rotation, to remain on for eight seconds, providing a change of color without a repeat for over a minute and a half. At one side of the front of the window was a spotlight of 500 watts

(*Continued on Page* 32)



The photograph at the top shows the Boy Scout parade in front of the demonstration window on the day of the opening. At the lower left is a picture of the layout of the color window and at the right is one of the displays put in by the Livingston Street Merchants' Association

How Contractors Can Build Good Customer Relations

"The Voice With the Smile Wins" Is Not Just a Slogan But a Fact and Employees Are Usually the Voice of the Contractor

By M. S. MacNAUGHT

THIS matter of signed orders is worthy of some attention. When men are out on contract work the original price covers a few definite things. Some customers go to foremen and tell them to do "such and so" and charge it extra. This is all very well, but human beings have strange limitations of memory, and the giver of such an order all too often forgets about it. If a dozen such verbal orders are given, and the extra bill then amounts to about as much as the whole original job, argument, discussion and strife frequently result.

The owner says one thing, the foreman another. The owner declares he only wanted one receptacle, the foreman swears he ordered half a dozen. The contractor without any certain facts is faced with the alternative of cutting his bill or losing his customer, and possibly both!

It is only necessary for the contractor to have a simple form printed on which the foreman writes the date and a description of the work ordered. This he presents to the customer for signature, and the shop rule should be "No signature—no work." A client can hardly deny the mute evidence of his signature, and so the possibility of argument over extra work is eliminated.

Collection Troubles

To their sorrow, some contractors in taking a bill into court for collection have found that their supposedly valid order was signed by a man with no legal authority to do so. It is consequently a business necessity to be sure all orders are valid and this can be done only by determining the laws in force in the particular locality. Generally speaking, the signature of a firm member, officer of a corporation, or duly authorized executive should be insisted upon, for the contractor who lets his foreman accept orders from janitors, engineers, foremen, maintenance men and office employes may some day find himself with a nice fat bill and no way of collecting it.

The policy of reducing orders to writing is simply one phase of a general business principle that whenever possible all agreements, decisions, or important statements should be written. This is a protection to all concerned, for a precisely worded letter or document leaves practically no ground for misunderstanding, and eliminates completely the natural inability of the ordinary human memory to absorb correctly and preserve an accurate record of conversation.

NEARLY all of us habitually make our purchases at some congenial place. Back of price and quality stands the intangible but potent factor of satisfactory relations with this or that particular merchant. No electrical contractor will be able to build up his business without paying serious attention to customer relations. In this second and last of a series of articles Mr. MacNaught presents an intelligent and helpful discussion of the subject.—The Editor.

Many remarks made during an informal talk are subject to several interpretations, and this is decidedly the case when a contractor tries to reach a verbal agreement with a non-technical prospect.

The average customer has a tendency to interpret the words of a solicitor in his own favor. Thus a contractor gives his price for installing eighty outlets, intending that the fixtures will be extra and also that the owner will have the new service brought into the building at his own expense.

At the end of the job, the electragist finds that his customer expects him to supply fixtures and pay for the new service, all for the original price. And many times the client is honest in his conception that the original verbal agreement included these extra items. Such a situation, particularly when the client is obviously sincere, is uncomfortable to say the least and presents another path along which the unwary contractor loses customers and money.

No Remedy

There is little to be gained in searching for a remedy for such a development. There is none. Once the damage is done, little can be accomplished in the way of repairing it; instead of a remedy, electricians must apply a preventive before trouble has a chance to start.

In this case, the preventive is a precise letter, written so the customer can understand it, and specifying completely what the contractor intends to do for his price. If the service is included, say so; if it is omitted, mention the fact. If fixtures and lamps are to be furnished and installed specify exactly by catalogue numbers. Every indefinite phrase that creeps into a letter is an invitation to a dishonest customer to claim more than he is entitled to, and is an opening for a perfectly honest client to expect too much.

A letter of this general type should be written before starting any job:

> We are pleased to confirm our quotation of $355.00 for performing the following electrical work in connection with alterations to your store at 14 James Place.
>
> We will furnish and install 27 Hammond No. 3620H enclosing units at the locations shown by sketch. These will be placed in 9 rows of 3 each, and each row will be separately switched from your present meter board. At this meter board we will install the necessary fuses for the new circuits, enclosed in an iron box. We will then connect to 9 new tumbler switches, located 4'-6" from the floor, thence feeding in metal molding exposed to the new fixtures.
>
> Our price includes removal of present fixtures and wood molding, back to the

present fuse blocks. It does not include any changes which may be necessary in the mains or service entrance, nor does it include any painting of metal molding or other material. Lamps are to be provided and installed by the local lighting company.

We will pay for all permits and employer's liability insurance, but fire insurance on material installed is your responsibility. Our work is guaranteed to pass the local inspection department.

This matter of sending letters confirming verbal or telephone quotations is worthy of attention by construction companies regardless of size. Whether it is the wiring of a six room house for a hundred dollars, or alterations to a factory involving many thousands, the necessity exists for a complete written understanding before starting work.

The larger jobs usually are in accordance with the specifications of an architect or engineer, and the bid is submitted on a prescribed form "in accordance with plans and specifications." If the engineering has been properly performed, little room for confusion exists and the contract may be signed with no fear of trouble.

Most engineers are fair and reasonable and while they must of course interpret their specifications so that the owner receives full value for his money, they rarely find fault with a job that is performed with good materials and workmanship.

Occasionally an architect or engineer turns out very incomplete plans, either from a desire to dodge responsibility or because he considers the electrical end of little importance. The contractor who submits a flat price on such layouts is not so much a good business man as he is a rank gambler.

Indefinite Phrases

Such indefinite phrases as "The contractor is to replace any present work which the city inspector may condemn, at no additional expense to the owner" or "This contractor is to install satisfactory fixtures" at once indicate plenty of danger ahead for the careless contractor.

When a penny is tossed in the air, the chances are even that it will fall heads up, and the gambler has a chance of winning based on rigid mathematical laws; taking a contract on specifications which are vague is not worthy of a gambler's attention, for the risk is far greater. There is no way of mathematically determining the chances of coming out even, let alone winning, for an engineer's interpretation of his sketchy layout is sure to be against the contractor.

A poor layout and incomplete specifications indicate at once that the engineer has not in his possession all the facts and he is using general phrases and incomplete plans so that later he can force the contractor to do work which was not even contemplated at the start. Yet he has the nerve to ask a group of business men to give him a definite price on something which is indefinite—*and they do it.*

Engineers cannot do business unless they are able to secure contractors to bid on their work. If the good contractors of a city would simply agree not to bid on incomplete plans and specifications, the engineers, to save their reputations, would be forced to put out layouts giving all the facts regarding a job. It is only when complete information is available that an electragist can submit a bid in any sense removed from a sheer gamble.

To exist, the contractor must not only get business but he must also collect his bills after the work is done. Every industry faces credit problems, and the electrical field is no exception. In fact the situation is sometimes much more troublesome than in other lines. There are no cash sales in the contracting business; every job large or small contains a time element financially.

Type of Engineer

Work done on a contract with a good architect or engineer in charge of the job does not present a very serious problem. Usually a request for partial payment is submitted at the first of each month, is certified as correct by the architect and calls for payment on the tenth or fifteenth of the month.

Unfortunately, the great mass of alteration work, house construction, etc., is taken directly from the owner, or through a general contractor. Arrangements for payments are usually noticeable by their absence, and the contractor merely submits a bill, then hopes for payment inside of thirty days. After sixty days he begins to wonder and about the end of the third month he sails forth in quest of a check.

When an automobile is sold, it can be easily re-possessed if payments are not made on time. So also with pianos, furniture and many other items, but our business has no such simple remedy. We cannot very well go into a building and pull conduit out of the floor slab, or enter a shop and remove motor wiring. It would cost too much, gain nothing, and even as a spite method would leave the contractor open to legal prosecution.

Once again we find that as electragists we must not search for remedies. Once our troubles start they are beyond remedy. **We must prevent.**

Preventive Medicine

And the best preventive medicine for credit difficulties is to hand pick customers. Not long ago a call came to the writer's office requesting an electrician to do some work. The prospective customer was unknown to us, so before sending a man we did a little inquiring. It developed that the man concerned had neglected to pay bills due two or three other contractors, and, reaching the limit of their patience, he decided to place his patronage elsewhere, choosing us as his next victim.

Unless the contractor is doing a considerable amount of advertising, unsolicited orders to do work for an unknown person on a day work, cost plus or any other basis should be carefully investigated. Where possible, reference should be made to one of the standard credit sources. Every jobber has the usual credit ratings of corporations, etc., as part of his office equipment, and he is sure to permit any contractor to refer to such information at any time.

In dealing with individuals, nimble judgment of the customer is essential to satisfactory collections after the job is done. Corner grocers, druggists and similar shopkeepers can often give valuable information as to the financial responsibility of residents in their territory. These men deal with their neighbors year after year, and know very well just how they pay their bills. Their judgment of a towns person is as accurate in its way, as the carefully determined credit rating of a million dollar corporation by a reference service.

Every customer likes service—those little personal touches that are not charged for on the bill, the trivial little extras that have no financial value but mean so much to the average human. Service which pays is based upon a study of customer psychology, which in our industry boils down to something like the following:

We all like to feel that what we are doing is attracting some attention, that it is enough out of the ordinary to com-

mand praise, or study, or just plain interest. Turn your back on a little boy when he brings his new toy for your inspection, and he is hurt, perhaps even hates you for it; but smile, look it over, play with it even a little bit, and he loves you.

Our customers, mature in years, still retain this essentially human characteristic of all ages, and the electragist who realises it can lay foundations for very satisfactory relations upon it as a cornerstone.

Perhaps an installation of fifty fixtures is being made, and the whole job is almost painfully simple and straightforward, but the owner is very much interested. It is costing him good money, and he is eagerly looking forward to its completion so that he may compare new illumination with the old.

Such a job often requires no superintendence worthy of the name, for a good journeyman can easily handle every detail, yet as a matter of policy the superintendent and if possible the proprietor should visit the work two or three times, *and make it a point to see the owner.*

Friendliness

Just a few friendly words, an interesting comment or two as to the superior lighting effects to be expected, or a prophesy as to when the work will be done will without fail please the customer, and make him feel grateful for the attention given his problem. He is proud to find that his little job means enough to receive occasional inspection and supervision. And the result?

When the bill comes in, the customer is more likely to feel kindly toward his creditor and the chances of getting an early payment are much better than if no attention has been paid him. In other words, flatter the owner by giving him even trifling attention and collection problems start to vanish.

If an attempt is to be made to collect an itemized bill, the office duplicate should first be thoroughly studied, and any available records of the job consulted. Very often the debtor has an objection to the price charged for some piece of material, an objection which rapidly changes to a conviction if the collector does not know the facts which justify the charge.

On the other hand, if the collector is armed with the reason why every item on the bill is fair and reasonable, the customer is defeated in his sally, he loses the confidence that he once felt in his fight against the bill—and usually ends up by signing a check. A large percentage of the complaints against bills will be found upon analysis to be nothing more or less than disguised attempts to secure a sizeable discount, which fade away when faced with definite facts.

Most business men will listen to reason, and if at the very start a conciliatory attitude is adopted the contractor paves the way for a presentation of his side of the case later in the conversation, with every prospect that it will be given honest consideration. A little courtesy is a valuable stock in trade, equally as important as conduit, and other staple material supplies.

Rejecting a Fight

It requires practice and often a vast reservoir of patience to listen with outward courtesy to a vigorous kick against a bill, but that is one important way to win a collection battle. Rather than assuming the offensive immediately, permit the customer to present his case, lay his cards on the table and then each time he delivers what he believes is a forceful thrust, merely state the facts which directly refute his claims.

It is almost trite to suggest that a good bill collector never even hints that the debtor is dishonest. Rather, the utmost tact is required in presenting a request for payment. The usual approach is some statement to the effect that the bill has probably been overlooked. If there is a dispute, the contractor should always assume it to be honest and try to settle it without permitting any question of integrity to enter the conversation. A challenge of the motives behind a man's objections is a slap in the face that is never forgotten, never forgiven.

Personal Element

The personal element in bill collecting is very important indeed, for a customer almost always shows a certain amount of respect for the statements of the head of a construction house, whereas if an office employee or regular collector is sent to do the job, there is a greater tendency to assume that he does not know the whole story.

The appearance of the electragist himself in the office of a debtor is an indication that the collection of that particular account has some real importance attached to it. Furthermore, he knows the details of his business, and his word as regards unit price, labor, etc., carries real weight.

Along this line, personal acquaintance with customers is a valuable asset. Bills are likely to be paid much quicker if an element of friendship is mixed with the business dealings, and furthermore, future work is surer to come if past relations have led to a better mutual understanding.

One of the most frequent sources of irritation to a customer is delay in getting service from the lighting company. Regardless of the type of job, be it cottage or skyscraper, the owner is soon disturbed and even angered if he cannot use his lights or equipment.

A few experiences of this sort ought to teach any intelligent contractor that friendly relations with the local central station men and the city inspection department are vastly helpful in giving customers service. The contractor who succeeds in getting a job inspected, the service and meters installed, and lights or motors in use well inside the time limit earns the gratitude of the customer and a reputation which is valuable.

Many clients only require the service of an electrical man at rare intervals, and the important element in relations with this class is to keep the contractor's name familiar. This may be done in several ways, chief of which are periodical calls and solicitation, or some form of mail campaign.

The Personal Call

The contractor who has at least a passing acquaintance with his customers can undertake the personal call method very successfully. Perhaps once in three months he will visit the office, explaining his call if necessary by some remark such as "I just dropped in to make sure that the work we did for you last January has been satisfactory." Such a call, particularly on a busy executive, should by all means be brief. A reminder that the electragist is still expecting that customer's work, and that he is interested in the satisfactory performance of past work long after the bill has been paid, usually leaves its impression on the client.

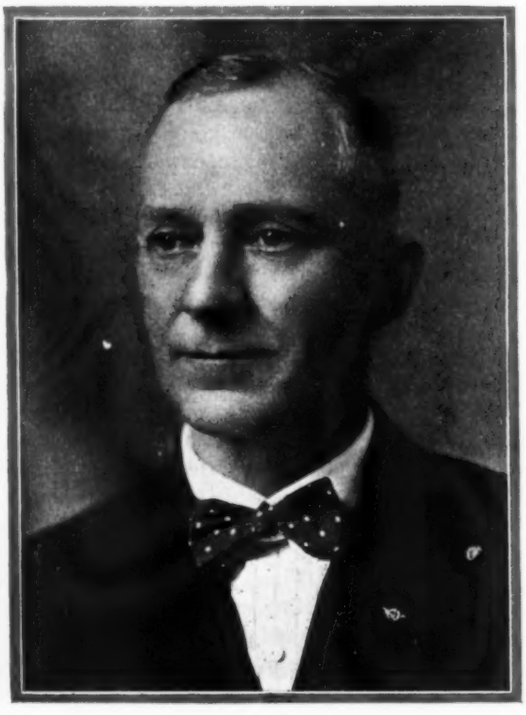
Direct by mail methods, such as sending calendars, blotters or novelties also help to keep the firm name before old customers. A cheap novelty or anything of poor quality, however, is advertising of the wrong sort. A con-

(*Continued on Page* 30)

C. F. Krech, Milwaukee

CHARLES F. KRECH took an unusual path to arrive in the electrical contracting business, but no one who knows him will deny that he has arrived very definitely. He was born in Milwaukee and the first three years of his business career were spent as a newspaperman in the business office of the Milwaukee Sentinel. He started electrical work in 1902 with the National Brake and Electric Company in the motor and regulator departments and later took an electrical engineering course with a local school and afterward at the University of Wisconsin. Then he took up steam railroad car lighting when it was in its infancy and worked at train lighting in all its branches, storage battery, manufacturing, assembling, testing and installing on the road in cities all over the United States, staying in that end for nine years, the last two with the Pullman Company, as one of the four assistants to the chief electrician. One of his assignments here was to accompany President Taft on his tour of the United States, as mechanical inspector on the special train. After train lighting had standardized itself, he went back to Milwaukee in 1912 to engage in the electrical contracting business for himself, doing contracting only. He occupied a small store for seven years and then took over the store next door and began handling appliances, fixtures, motors, lamps, radios, etc. He has been a member of the Wisconsin State Electrical Contractors and Dealers Association and the Milwaukee Electrical Contractors and Dealers Association for the last fifteen years. He served as chairman of the Milwaukee association and was on the board of directors for several years. He is a member of the Milwaukee Association of Commerce, Association of Railroad Electrical Engineers, a director of the Electric League, a member of the Committee on the Red Seal Plan, the Wisconsin Radio Association and the Milwaukee Advertising Club.

Electragists You Should Know



E. C. Bennett, Omaha

EDWIN C. BENNETT was born in Canada in 1865 and very nearly ended his career there two years later. The cause of his near demise was a shipwreck on an island off the Canadian coast, from which he and his family were rescued with great difficulty. Having lived through this, Mr. Bennett is able to smile at the trifling difficulties that beset an electrical contractor. In 1881, after receiving a country school education, he had an opportunity to go to Boston as an apprentice to learn the carpenter trade. In 1885, he was hired by the Boston Edison Illuminating Company to make some alterations in a building, which they had purchased for a commercial lighting plant. This lighting company was the first one in the city of Boston, organized for serving the public. Mr. Bennett built the wooden switch-board for their first lighting plant, and assisted in wiring the first theater in Boston to use electricity for illumination. In 1887, he went to Chicago and was employed by the Chicago Edison Company as foreman of fine residence wiring, wiring such homes as those of P. D. Armour, George M. Pullman, Harvey, Sprague, and many others. In 1891 he was employed as foreman by the electrical department of the World's Columbian Exposition, having charge of all inside light and power wiring installed in the thirteen large Exposition buildings. Mr. Bennett started contracting after the Exposition and handled a number of large contracts. In 1897 he received a contract to wire the new Burlington passenger depot in Omaha, Nebraska, and, believing Omaha a good place in which to live, he moved his family there. His principal business is wiring for commercial lighting and power, and the wiring of fine residences. He is a member of the Omaha Business Men's Association, Commercial Club, Omaha Electrical League, Omaha Electragists Association and the Carter Lake Club.

Red Seal Jobs Usually Better Than Red Seal Specifications

Reports from All Over Country Indicate That When a Red Seal Job Is Sold the Owner Usually Asks for an Installation Much Better Than Required

WHEN the Red Seal Plan was first proposed it appealed to the contractor because it raised the standard of wiring considerably above the average and gave him a chance to sell wiring jobs as against selling price. Requirements for gaining the Red Seal certificate were purposely placed high in order to give the Red Seal a real value in the eyes of the public and it was thought by some that the very high standard might serve to retard the spread of the Plan.

It has turned out to be just the opposite, as shown in the survey below, taken from the report of the Red Seal Advisory Committee appointed by the Associated Manufacturers of Electrical Supplies, made at its recent annual convention. Wherever the Red Seal has been pushed, wiring standards have been raised not only up to the Red Seal level but far beyond it. There is an astounding picture here of the possibilities offered contractor-dealers by the Red Seal when it comes into its own all over the country.

The following figures, as the report says, indicate the increased number of switches, lighting and convenience outlets utilized in bringing a wired home to the Red Seal standard, also the increased number actually installed over the minimum requirements of the Red Seal specifications. The figures demonstrate that the Red Seal standard is entirely reasonable and applicable to the average home, also that when the builders' attention is called to the advantages of adequate wiring, the tendency is to install a considerably greater number of outlets and switches than is demanded by the specifications. The Red Seal jobs have all the way from 10 to 110 per cent more outlets than called for in the local League specifications.

Electric League of Louisville

1886 outlets in 22 houses,
731 more than Red Seal demanded.

	Required	*Installed*	*Increase*
Light outlets	438	768	75%
Switches	358	577	61%
Convenience outlets	359	541	37%

How the Red Seal Has Increased Wiring Installations

Louisville
22 Red Seal Houses Average **65 Percent** Above Minimum Requirements.

Pittsburgh
The Red Seal Increased 8 Wiring Jobs **110 Percent.**

Rochester
25 Red Seal Houses Average **30 Percent** Above Minimum Requirements.

Colorado
5 Red Seal Houses Average **25 Percent** Above Minimum Requirements.

Minneapolis
60 Red Seal Houses Average **16 Percent** Above Minimum Requirements.

Youngstown
23 Red Seal Houses Average **10.2 Percent** Above Minimum Requirements.

Hudson Valley
19 Red Seal Houses Average **55 Percent** Above Minimum Requirements.

St. Paul
52 Red Seal Houses Average **22.1 Percent** Above Minimum Requirements.

Atlanta
16 Red Seal Houses Average **12.5 Percent** Above Minimum Requirements.

Niagara Frontier
60 Red Seal Houses Average **30 Percent** Above Minimum Requirements.

The Electrical League of Pittsburgh

The Red Seal has increased eight wiring jobs 110 per cent.

Job No.	*Original Estimate*		*Red Seal Increase*
1	$128.00	to	$338.00
2	343.00	to	950.00
3	130.00	to	250.00
4	110.00	to	305.00
5	120.00	to	140.00
6	210.00	to	295.00
7	180.00	to	250.00
8	240.00	to	285.00

Electrical League of Rochester

1409 Outlets Required by Red Seal.
1847 Installed, in 25 homes.

"In 25 houses, lighting outlets required 519, installed 738; switches required 430, installed 524; convenience outlets required 460, installed 584."

Electrical League of Colorado

Red Seal Standard puts 107 extra outlets in 5 homes.

"Data on three bungalows and two double stories indicates approximately 152 lighting outlets, 106 convenience outlets and 135 switches, total required under our specifications. Records show addition of 35 lighting outlets, 34 convenience outlets, and 38 switches to these five residences.

Electrical Extension Bureau of Detroit

Total of 4567 outlets in 42 Red Seal Homes.

"Based on 42 Red Seal Jobs, the following outlets were required by Red Seal specifications: 1191 switch outlets, 1344 convenience outlets, 2032 lighting outlets.

Electrical League of Minneapolis

Outlets in 60 Red Seal Homes Average 16% above Requirements.

"Seventeen switches, 20 light outlets, 15 convenience outlets required for average five room Red Seal Home. Each additional bedroom requires ceiling light, two wall lights and two convenience outlets. Average 16 percent increase over minimum requirements on 60 homes surveyed."

Electrical League of Youngstown

2215 outlets in 23 homes. 10.2 percent above Red Seal Minimum.

"Twenty-three homes, 639 ceiling, 244 side, 679 convenience outlets, 414 one-way, 235 three-way or four-way switches, total minimum outlets 2010.

Additional outlets 205, or approximately 10.2 per cent increase.

Hudson Valley Electrical League

Red Seal called for 700 outlets in 19 Homes. 1094 were installed.

"271 light outlets required, 479 installed, increase 77 per cent. 232 switches required, 274 installed, 18 per cent increase. 197 convenience outlets required, 341 installed, 73 per cent increase in 19 homes."

Electrical League of St. Paul

4278 Outlets in 52 homes.
22.1% above specifications.

"Fifty-two Homes: 3502 outlets required, 4278 outlets installed, 776 outlets in excess of the required number. Fifteen outlets average increase over required per home, or a total of 22.1 per cent above specifications."

Atlanta Electrical League

73 Red Seal Homes completed.
100 more signed up.

"Taking average 16 homes approximate requirements 21 lighting outlets, 17 switches, 19 convenience outlets, 12.5 per cent increase over minimum. Closed written agreement today 100 Red Seal Homes, Atlanta's best section."

Electrical League of Niagara Frontier

5384 outlets in 60 homes.
1199 in excess of standard.

Outlets installed in 60 homes		*Average per home*	*Minimum requirements for average home*
Ceiling lights	1605	26.7	21
Side lights	1271	21.2	7
One-way switches	1041	17.4	14
Three-way switches	353	5.78	4
Convenience outlets	1384	23.1	19
Special and Power outlets	180	3.0	2
Total	5384	97.18	67

Excess over Red Seal Requirements		*Average per home*	*Increase over minimum*
Special and power outlets	71	1.18	
Ceiling lights	164	2.73	
Side lights	673	11.20	
One-way switches	87	1.45	22.25%
Three-way switches	95	1.58	
Convenience outlets	109	1.81	
	1199	19.95	

Philadelphia Contractors Initiate Educational System for Their Employees

Course Will Extend Over Three Years and Cost Will be Defrayed by Employers Provided Student Makes Passing Marks—Studies Under Supervision of Spring Garden Institute

A THREE-YEAR educational course for employees has been started by the Philadelphia Association of Electrical Contractors and Dealers with the purpose of making the men more efficient in their profession. The initial cost of the course, which is to be given at the Spring Garden Institute, has been defrayed by the employers, each firm having deposited fifty dollars with the association to be used at the discretion of the educational committee.

To bring the movement to the attention of the men a prospectus of the course has been printed in poster form and has been hung in the shop or office of each member. In addition to this a small flier is placed in each pay envelope, explaining the course, what it proposes to do, the method of payment, etc.

The curriculum as tentatively laid out is as follows:

First Year
1st Semester (13 weeks)

Monday	*Friday*
7:30-8:30 Electricity (laboratory)	English
8:30-9:30 Electricity (laboratory)	Arithmetic

2d Semester

7:30-8:30 Electricity	Mechanical Drawing
8:30-9:30 Electricity	Mechanical Drawing

Second Year
1st Semester

7:30-8:30 Electricity	English (Composition)
8:30-9:30 Electricity	Shop Mathematics

2d Semester

7:30-8:30 Electricity	Mechanical Drawing
8:30-9:30 Electricity	Mechanical Drawing

Third Year
1st Semester

7:30-8:30 Electricity	Illumination
8:30-9:30 Electricity	Illumination

2d Semester

7:30-8:30 Electricity (high Ten.)	Sub-Station design
8:30-9:30 Electricity (high Ten.)	Sub-Station design

During the course, men from the central station, Underwriters, jobbers, manufacturers and industrial plants will be asked to give talks to the students relating to their work.

The course is to consist of three years of twenty-six weeks each. Each year is to be divided into two terms of thirteen weeks. Tests are to be given at the end of each term. Any employee who does not desire to take the regular course as outlined by the educational committee, can by special arrangements take any of the Institute regular courses at a reduced rate.

The course will be open to any employee of any member of the contractors' association. A letter from the employer to the educational committee must accompany each enrollment.

The cost of the year's course is to be divided into equal payments of $2.00 per week and deducted from the employee's pay, forwarded to the committee and credit given to the student. At the end of thirteen weeks a report as to the progress of each student will be made up and given him and a copy sent to his present employer. If at the end of the year the student receives a passing mark in all studies, all payments deducted from his pay envelope will be refunded to him by the committee.

At the end of the year the student having the highest average, in each of the three classes, will be given $25 by the committee and a week's vacation at full pay by his present employer, provided he has been in his employ for a period of at least six months prior to the end of the year. The second highest of each of the three classes will be given $15 and a week's vacation. The next two highest will receive $10 each and the next two $5 each. These do not include any vacation.

The educational committee will finance the course on the $50 received from each contractor, adding to the remainder the installment received from each student, through his employer.

The Institute will have the right to enter students to this course, other than those coming through the educational committee of the contractors' association, provided they charge such students the sum of $35 for one year. All books and supplies are to be paid for by the student.

The committee will pay to the Spring Garden Institute $500 for which they will receive instruction to students up to and including twenty-five students. Over twenty-five the charge will be $20 per student per term.

Labor Records on Apartment House Armored Cable Installation

Records of This Nature Make Possible Efficient Job Management and Present a Means of Determining the Best Methods to Use on the Job

By ARTHUR L. ABBOTT

Technical Director, Association of Electragists, International

THE Schumacher-Gray Company, Ltd., of Winnipeg, recently finished an armored cable wiring installation in an apartment building on which they kept very complete detailed labor records. Much of the data secured is particularly valuable because it is in such form as to be directly comparable with the labor data contained in the Association of Electragists' Estimating Manual. Records were also secured of labor on a number of operations on which no reliable data has heretofore been available.

Average Apartment

The building is 93 ft. by 60 ft. and three stories high above the basement, with seven apartments on each floor or 21 apartments in all. The exterior walls are of brick and the floors and interior partitions are of frame construction.

The service furnished is 3-wire, 110-220 volts, a. c. Service wires consist of three 500,000 c. m. cables installed in 3-in. conduit from overhead service connections to a 400-amp. switch in the basement. Three bus lines are fed from the main service switch: one for the lighting load feeding twenty-two meter service switches, one switch for each apartment and one for the public lights; one bus line for the range load, feeding twenty-one meter service switches; and one special bus line for three water heaters.

From each lighting meter service switch a No. 14 2-wire armored cable riser is run direct to a cabinet in each apartment, the outlets in each apartment being wired on two circuits. From each range meter service switch a No. 6 3-wire armored cable riser is run to the cabinet in each apartment. This riser is tapped in the cabinet to supply a No. 14 2-wire circuit to a grate, while the No. 6 continues to the range. As the ranges are permanent fixtures in the apartments, the armored cable was in each case merely brought out through the lath and plaster and run directly into the connection compartment of the range, except that six of the ranges proved to be of a different type so that the cable had to be spliced in an outlet box and run from the box to the range.

From the main service switch a 2-wire No. 2 feeder runs to a 100-amp. switch and meter loop and thence to a bank of three 30-amp. switches concontrolling three 5-K. W. water heaters which supply hot water throughout the building.

Lighting Branch Circuits and Risers

The actual labor on this part of the work can be directly compared with the data in the Electragist Estimating Manual, file 6, page 25, table 14.

In each apartment an 8 in. by 14 in. x 3 in. cabinet was installed, each cabinet containing one 60-amp. 3P. S.B. cutout and one 30-amp. 2P. D.B. cutout. The unit times recorded are as follows in Table B:

Table B	Hours Each
Mounting cabinets	0.50
Mounting cutouts	0.21
Connecting	
Terminals without lugs	0.05
60-amp. terminals with lugs	0.10

For making 341 splices at outlets the total time required, including testing, was 40.5 hours. The time allowance given in Table 14, file 6, page 25 is 0.11 hr. per splice. At this rate 341 splices would amount to 37.51 hours. The actual time is 108 percent of this figure.

Service

The service conduit extended from Type F conduit to the main service switch and from the switch to a wiring trough. This run includes the following material:

3-in. Conduit	23 ft.
3-in. by 12-in. Nipple	1
3-in. Close Nipple	1
3-in. LB Condulet	1
3-in. F Condulet	1
3-in. by 3-in. by 1-in. Galv. Tee	1
3-in. Pipe Straps	3

Table A—Estimated Labor

	Number	Hours Each	Total Hours
Ceiling and Bracket Outlets, Conduit boxes	214	0.55	117.7
Switch and Convenience Outlets, not including switches and receptacles	191	0.41	78.31
Convenience Outlets, full circuit (Outlets were actually Type A Condulets)	18	0.50	9.00
Item 1—Total			205.01
Actual time 182.4 hours or 89% of estimated time.			
Item 2—Switches and Receptacles	191	0.25	47.75
Actual time 46.5 hours or 97% of estimated time.			
Item 3—Risers, Cable	1300 ft.	1.3 hrs. per 100 ft.	16.9
Actual time 16.6 hours or 98% of estimated time.			
Total of Items 1, 2 and 3—estimated—269.66 hours.			
Actual time 245.5 hours or 91% of estimated time.			

All nipples were machine cut away from the job and two full lengths were used between the two condulets, so that all cutting and threading was eliminated.

It was found that the actual time could be closely approximated by considering all pipe connections to fittings as pipe terminals, and applying to these the unit 0.1 hour each, which is the time allowance for a terminal less the time included for cutting and threading. It remains to be seen whether this method will work out correctly in all cases. The computation is in Table C.

Table C	Feet	Unit Hours	Hours
3-in. Conduit	24	10.8	2.59
Terminals less cut and thread	6	0.10	.60
Expansion bolts	6	0.13	.78
			3.97

Actual time, 3.5 hours or 88%.

The shop charge for cutting and threading should of course be included in the cost of the job.

The ground connection consisted of 1-in. pipe and the following material was used:

Table D	Feet
1-in. Conduit	15
1-in. Plumbers' Ells	2
1-in. by 4-in. Nipples	2
1-in. Union	1
Ground Clamp	1

The ground clamp was a fitting threaded to receive the pipe.

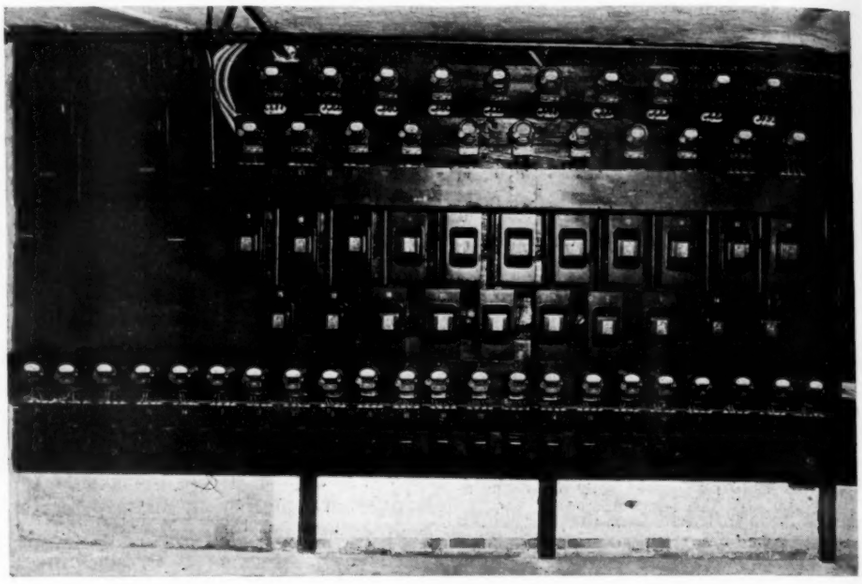


Figure 1—The Lighting and Range Service Distribution Board of the Installation

In this case we have a total of eight pipe connections to fittings, four of these (two 4-in. nipples) requiring no cutting and threading and four which did require cutting and threading. Using the same method as was used for the service conduit we have:

Table E	Feet	Unit Hours	Hours
1-in. Conduit	15	3.3 per 100′	0.50
Terminals	4	0.25 each	1.00
Terminals less cut and thread	4	0.06 each	0.24
			1.74

Actual time, 2 hours or 115%.

The conduit connections to the 100-amp. switch shown at the extreme right in Fig. 1 consisted of one 1½-in. close nipple and one 1½-in by 36-in. nipple. Here we have 3 ft. of 1½-in. pipe and four terminals, but the close nipple was bought ready cut. The labor computation is:

Table F	Feet	Unit Hours	Hours
1½-in. Conduit	3	4.9 per 100′	0.15
Terminals	2	0.5 each	1.00
Terminals less cut and thread	2	0.07 each	0.14
			1.29

Actual time, 1.5 hours or 116%.

Mounting one 100-amp. 3P. X.O. switch and one 400-amp. 3P. X.O. switch on wood and sweating on lugs required seven hours. The time figured as per Table 1, file 5, page 1 would be 10.5 hours. The actual time is 66 percent of the estimated time.

The time for pulling in 135 ft. of 500,000 c. m. service cable was 1.5 hours. In such a case as this it is not necessary to include the allowance for the "constant time per run" given in Table 8, file 4, page 34. Even so, using the unit time of 35.6 hours per 1,000 ft. the estimated labor would be 4.5 hours or three times the actual time. About 55 ft. of this cable was merely laid in place in a trough and a 3 ft. length of conduit. The remaining 80 ft. was fed down through a 20 ft. vertical conduit and the lower end was pushed through a 1 ft. nipple into the

Figure 2—Installation for Supplying the Three 5-K.-W. Water Heater Units

switch box. No fishing was required, no pulling rope was used and there was no heavy pulling.

Distribution Boards

The details of the labor on the construction of the lighting and range service distribution board shown in Fig. 1 are given below.

Table G	Total Hours	Unit Hours
Building back-board 7 ft. by 19 ft.—⅞-in. lumber on 2-in. by 4-in. uprights secured to brick wall	11	
Painting back-board	2.5	
Mounting trough 5-in. by 3-in. by 19 ft., mounting and connecting 22—2P. and 1—3P. 30-amp. switches	9	0.41 per switch
Mounting trough 8-in. by 8-in. by 11 ft., mounting and connecting 21—3P. 60-amp. switches	13	0.62 per switch
23—¾-in. close nipple	2	0.09 each
22—1-in. close nipple	2.15	0.10 each
20—1¼-in. by 11-in. and 1¼-in. by 18-in. nipples	2.3	0.12 each
44 taps—No. 10 wire to No. 2	12	0.27 each
54 taps—No. 6 wire to 500,000 c.m.	40	0.74 each
90 splices—No. 6 to No. 6	16	0.18 each
128 Federal bushings	1.55	1.2 per 100
64 numbers stenciled	2	3.1 per 100
Total	113.50	

The above data is not in practical form to use in estimating. It would seem to be a practical method to combine in one figure all labor per switch for mounting switch and trough, installing nipples between switch and trough, connecting the switch, making taps to mains and stenciling. The splicing must also be included in the case of the 60-amp. switches. These labor units then are:

30-amp. 2P. switch—each—1.13 hours.
60-amp. 3P. switch—each—3.6 hours.

The installation for supplying the three 5-K. W. water heater units is shown in Fig. 2. The list of material and the labor estimate is given below. Two terminals, less cutting and threading time, are allowed for each elbow and the condulet. The unit time deduced in the preceding case for a 30-amp. 2P. switch, 1.13 hours, is used here.

Telephone Conduit and Fire Alarm System

Thirty-five outlets and 430 ft. of rigid conduit were installed for public telephones and a simple fire alarm system. This conduit was run across the basement ceiling and then up to the apartments and corridors. The basement ceiling was stripped and there were only ten bends in the conduit.

In order to produce a labor figure which would meet the actual conditions the Manual unit for a stripped wood joist ceiling was used for all conduits with the allowance for bends deducted,

Table I	Feet	Unit Hours	Total Hours
½-in. Conduit	430	1.8 per 100 ft.	7.75
Wall Outlets	35	22 per C	7.7
Pipe Entrances —wall—½-in.	70	31 per C	21.70
Total			37.15
Less 60 bends		7.7 per C	4.64
Net			32.51

which reduces the unit to 1.8 hours per 100 ft. The standard unit for wall outlets was used and the time for pipe entrances was rechecked and brought down to 31 hours per 100. The latter figure contains an allowance of 7.7 hours for one bend per pipe entrance, or 70 bends total for 70 pipe entrances.

Table H	Number	Unit Hours	Hours
1¼-in. Conduit	30 ft.	4.3 per C ft.	1.29
1¼-in. Ls	3		
1¼-in. L R Condulet	1		
1¼-in. by 4-in. Nipple	1		
1¼-in. Terminals less cut and thread	10	0.07 each	0.70
No. 2 Wire	75 ft.	14.4 per M ft.	1.08
6-in. by 4-in. by 30-in. Trough	1		
30-amp. 2P. X.O. Switches	3	1.13 each	3.39
¾-in. Close Nipple	3		
¾-in. Locknuts and Bushings	6		
No. 10 2 wire Armored Cable	10 ft.		
Cable Connectors	6	0.10 each	0.60
100-amp. 2P. X.O. Switch	1		2.60
			9.66

There were actually, however, only 10 bends on the entire job. The time for 60 bends is therefore deducted and the calculation is in Table I.

The actual time on this work was 11.5 hours, the estimate being 1.85 hours too low. Building the back-board on which the switches are mounted would probably account for about this much time.

Range Wiring

Material used and itemized record of the actual labor:

Table J	Feet	Hours
No. 6 3-wire Cable	1480	25.5
Cable Connectors	84	4.4
1¼-in. Holes bored	170	8.0
1-in. Pipe Straps	100	3.5
Testing	..	3.0
Total		44.4
or 3 hrs. per 100' of cable		

Connecting 21 ranges—1 hr. each, or 0.33 hr. per lug.

Making 18 splices in No. 6 wire—0.45 hr. per splice.

Actual time, 29 hours or 90% of computed time.

To pull in 250 ft. of No. 14 wire required 1.5 hours or 6 hours per 1,000 ft. Installing thirty telephone plates required 3.5 hours or 11.7 hours per 100.

After the installation of the conduit and wire the total time for installing four fire alarm gongs, four fire alarm stations and one 100-watt transformer was 8.5 hours, or 0.95 hr. for each piece of apparatus. This included mounting the apparatus, testing and connecting.

Bell Work and Letterboxes

The labor record on this work is as given in Table K.

The time for running the No. 19 twisted pair plus the testing and connections on this wire amounts to 9.1 hours per 100 ft. In order to arrive at a figure to be used as a guide in estimating the labor of installing the equipment or for comparison with other data no better method has been discovered than to find an average by dividing the total time of 24 hours by 109, the total number of bells, pushes, letter boxes and transformers. This gives us .224 hours as the average time each.

Fixtures

To install 209 fixtures and drop cords the total time was 122.5 hours or practically 0.6 hour each.

Nine hours were spent moving mate-

Table K	Number	Hours
No. 19 twisted pair telephone wire	2200 ft.	
Installing—(200 Milonite nails used)		12.5
Connecting and testing		8
Letter Boxes with push button	21	6
Bells and Buzzers	42	9
Transformers—installed in apartment cabinets	22	5
Push buttons at suite doors	22	4

rial, 15 hours cutting and channelling brick walls and 11.5 hours on miscellaneous work. The total time on the entire job was 800 hours.

These records were kept in much greater detail than is indicated by the figures presented here. The value of such data as this can hardly be overstated. J. H. Schumacher, president of the Schumacher-Gray Company, is the chairman of the Cost Data Committee of the Association of Electragists. Mr. Schumacher finds that the time required to keep itemized labor records shows up on the balance sheet as highly productive labor, work that pays dividends for every hour that is given to computing the records.

North Gives Twelve Reasons for Loss of Profits in Contracting

President of Cleveland League Says These Conditions Can Be Remedied and Suggests Direct-Mail Campaign to Reach Architects, Builders and Owners

THERE are twelve causes for an electrical contracting business being conducted at a loss, according to a talk made before the Electrical Contractors' Association of Cleveland this spring by J. E. North, president of the Electrical League of Cleveland. He also suggested remedies for these conditions and ended his talk by dealing with a direct-by-mail campaign to improve the contracting business. The twelve reasons were:

1—Inside information or mutual agreement between the electric contractor and the person letting the contract.

2—Because low bid is necessary to hold a customer for whom contractor has been doing work on a time and material basis.

3—Contractor feels that the possibility of future business on a time and material basis justifies low bid.

4—To establish a reputation in the hope of securing favorable consideration on future work of larger volume.

5—Ignorance of, or improper application of knowledge of costs.

6—Unintentional errors in estimating.

7—Just damn meanness.

8—The old excuse—to hold organization together which in the majority of cases is an admission of lack of executive ability.

9—Because of the apparent possibilities, on account of incomplete plans and specifications, to make a profit on extras and changes.

J. E. North

10—Because of the opportunity for substitution of materials.

11—Because contractor knows in advance that careless inspection will permit omissions.

12—Frequently low bids are made in competition with an irresponsible contractor who hasn't the least intention of paying for materials.

"With these conditions," Mr. North declared, "increased volume will not benefit contractors who seem determined to give away their profits from time and material jobs to architects, general contractors and owners on bid jobs.

Remedy for Conditions

"It rests with the contractors to change conditions and eliminate the twelve reasons why jobs are taken at a loss, and it seems to me that the twelve reasons can be eliminated one by one starting at No. 12 and working toward the top.

"Whether it be an organization or an individual, progress comes from tackling and finishing one job at a time.

"I would suggest that job No. 1 be that of distributing propaganda to influence architects, general contractors and owners that complete plans, specifications and rigid inspection are important in connection with all jobs.

Good Customer Relations

(*Continued from Page* 23)

tractor who preaches quality in his sales talk should never use inferior material for his customer contact methods. In arranging a campaign of this sort, pick something which is likely to be of daily use, which silently serves as a reminder of the giver, and which is of such good quality that any customer will gladly give it a place on his desk, or in his home.

In the hope that the last thing read will be remembered when all else is forgotten, this article ends with an earnest suggestion that promises and guarantees be used sparingly in our industry. Electrical installations are subject to many difficulties in their initial construction, and are often easily tampered with or broken.

In spite of this, many contractors freely make promises as to excellence of work, speed of construction and continuity of service which are unjustified. This really amounts to deception.

It is rarely necessary for an electrical contractor to make any glowing promises to land a job, yet many persist in doing so, to the ultimate harm of the contractor himself, and to the entire industry.

Suffice it to remark that the least said, the sooner mended. If no promises are made, none are broken and customer relations are thereby improved.

Red Seal Progress

Red Seal Progress

THE total number of Red Seal homes in the United States has now passed the thousand mark by a considerable number. According to a report issued on June 5 through the Society for Electrical Development, there had been a total of 960 certificates awarded by the licensed leagues, but these figures were complete only to dates varying from April 7 to May 24 and since then a great many additional certificates have been awarded.

In Pittsburgh, for instance, the total has gone from 169 to 182, in Rochester from 93 to 110 and it is the same throughout the country.

Fifty-five Licenses

According to the same report fifty-five Class "A" Red Seal licenses have been issued, the number including twenty-five licenses in the state of California. These leagues covered 816 communities of 500 population or over, with a total population of 11,163,076. Following the release of these figures came the news of the licensing of one more league, the Albany Electrical League. In addition, seven leagues have applied for Red Seal licenses and thirty other communities are considering putting the Red Seal plan into operation.

News of the doings of particular leagues is plentiful and it seems safe to say that the end of the summer home building season will see the present number of Red Seal homes tripled.

During the month of May twelve Red Seal certificates were awarded by the Hudson Valley Electrical League, all but one of them through I. B. Venable of Poughkeepsie. To June 1 there were 45 Red Seal homes completed and 27 under construction, making a total of 72 for the Hudson Valley territory.

Red Seal in Rhode Island got a flying start at a meeting on May 29 of architects and real estate operators, held in Providence. Three weeks later the state had four Red Seal homes.

Atlanta has made a huge step forward by means of an agreement made by the league there with the Flagler Company, one of the largest builders of homes in the South. The company will build 100 Red Seal homes in Avondale, a new suburb, making them all Red Seal, and recently ran a full-page advertisement in the Atlanta papers, telling the story of the Red Seal.

Two of the first three Red Seal homes built in Kansas City were exhibition homes, one of them the prize home of the Lehigh Portland Cement Company, and the other an exhibition home built by the J. C. Nichols Company. Two meetings have been held there for architects and real estate men, one on April 27 and the second on May 14. Both were largely attended and to make sure no contacts are missed the Electric Club has sent out a letter explaining the Red Seal to a selected mailing list.

Memphis has also prepared a Red Seal home for public inspection and Pittsburgh had a Red Seal booth at its recent Electrical Show.

Red Seal in Rochester Electrical Page

A great deal of interesting publicity is being given the Red Seal plan in the weekly electrical page in a Rochester daily newspaper, sponsored by the Electrical League of Rochester. Each issue of the page contains some illuminating comment on the details of the Red Seal Plan or the value of it to the home owner, the real estate man or the speculative builder.

One story concerned the advantages of wiring the living room up to Red Seal standards. It took up the problem of general and specialized illumination in a living room, showed how they might be solved by the Red Seal Plan and proved that the plan would be adequate for any arrangement of furniture.

Another took up home decoration, saying:

"Your outlets must be so placed that you can illuminate your furniture, pictures and other decorations and furnishings to get the best effect. This presents a very pretty designing problem, one upon which expert advice might be very welcome . . . A true home must grow with the family and reflect their changing personalities. Your wiring system must, therefore, be flexible to take care of this growth . . . This is the most difficult aspect in home designing and one in which the Red Seal Plan will help you the most."

A third story gave the points of interest to look for in the Red Seal houses which were exhibited in Rochester recently, serving much as a guidebook does in an art gallery.

Still another article treated of the convenience of wall switches as placed by the Red Seal Plan.

Syracuse League Has Series of Red Seal Letters

A series of letters explaining the reasons for and the advantage of the Red Seal Plan are being sent out by the Syracuse Electric League. One letter is written to real estate men, a second to the home owner, a third to architects and the fourth to the building contractor.

The letter to the home owner is as follows:

"A yard stick is used to measure and lay out anything that has length.

"An electrical yard stick—the National Red Seal Plan—is easy to use to measure your home electrically; to measure the safety from worry or embarrassment because the home is modern; to measure the convenience of turning lights on or off from any point; to measure the comfort of using your pretty lamps and your labor-saving appliances.

"The National Red Seal Plan is a booklet full of pictures and pertinent facts for home owners.

"You owe it to yourself to read it through—because the whole plan is designed for your benefit.

"Be sure you have a copy of the National Red Seal Plan."

Each letter is an original, personally signed, and is accompanied by a copy of the Red Seal specifications and the National Red Seal Plan booklet. Mailing lists of real estate men, architects and builders are easy to obtain. The mailing list of the home owners is made up from all persons buying lots, taking out building permits and those that get marriage licenses.

On the back of each letter is a number of pictures of Syracuse homes which have been awarded Red Seal certificates, to show the recipient of the letter the fine class of residences in which Red Seal jobs are being installed in Syracuse.

Central Hudson System Carries Red Seal Mountain to Rural Mahomet

First Portable Red Seal House in Existence on Exhibition in Territory of Hudson Valley Electrical League and Will Visit Twelve Towns During Summer

FOR the first time in the history of the Red Seal, this national plan for more adequate wiring has been put into a form enabling it to fold its tents, a la the Arab, and silently roll away to new fields of endeavor whenever the interest of a community has been satisfied.

The exhibit is a portable Red Seal home, which was prepared by the Central Hudson System of Gas & Electric Companies under the direction of G. D. Munger of the sales promotion department, who also is serving as secretary of the Hudson Valley Electrical League.

Construction of the house is shown in the photographs below. It can be assembled and taken down again with no other tools than a monkey wrench, and can be transported by truck.

It is fourteen by thirty-eight feet and contains a combination living room and dining room, a kitchen and a bedroom. The wiring for the house is so designed that it is portable and at the same time meets the requirements of the National Board of Fire Underwriters. The wiring and outlets are about two and one-half times better than the minimum Red Seal requirements.

The first appearance of the portable Red Seal home was at Pine Plains, about thirty-five miles north of Poughkeepsie, and nearly two thousand persons visited the house during the week.

Everything possible is being done to bring the complete story of Red Seal advantages to the rural territory covered by the Hudson Valley league. There are three demonstrators at the home, each ready to explain the meaning of Red Seal wiring in terms of household convenience and comfort.

A temporary Red Seal poster is affixed to the exterior of the home and the permanent decalcomania is on the meter box. The framed Red Seal certificate is also displayed.

The schedule for the home is as follows: Wappingers Falls, June 29-July 3; Fishkill Village, July 12-17; Highland, July 26-29; Tannersville, August 4-8; Green County Fair, August 16-19; Dutchess County Fair, August 30-September 3; Coxsackie, September 13-18; Saugerties, September 27-October 2; Rosendale, October 11-16; Montgomery, October 25-30; Cornwall, Nov. 8-13.

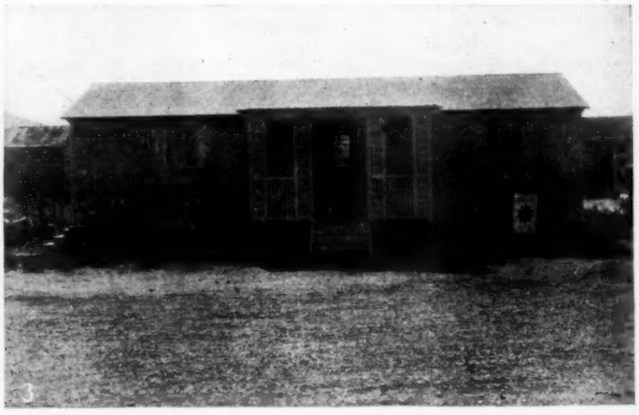
Co-operative Window Show

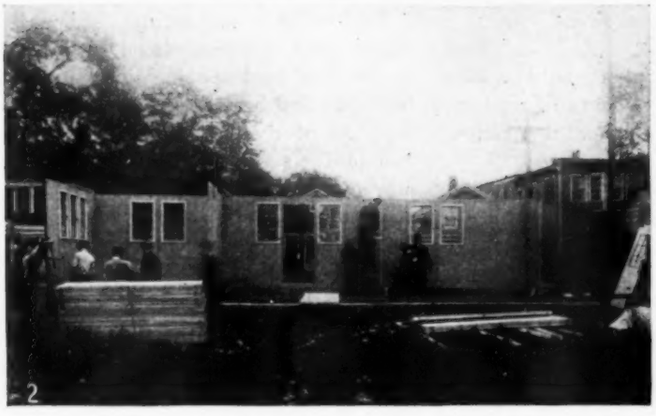
(*Continued from Page* 20.)

and at the other was a floodlight of 200 watts. Each show window reflector was of 200 watts.

The interest aroused by the demonstration easily made up for the trouble and expense of putting it in. The Boy Scout parade shown in the photograph below drew public attention to the opening and the window was formally switched on by "Miss Livingston," winner of a local beauty contest.

A number of installations of window lighting have gone in on Livingston street since the demonstration, showing that these merchants, who are not different from any other retailers, were anxious to put in good window lighting just as soon as they found out what to do.





1. The start of the portable home. 2. Four hours later and the house half finished. 3. How the house looks when it is complete. 4. A view of the comfortable living room and bedroom.

The Unit Method for Keeping Supplies and Supply Records

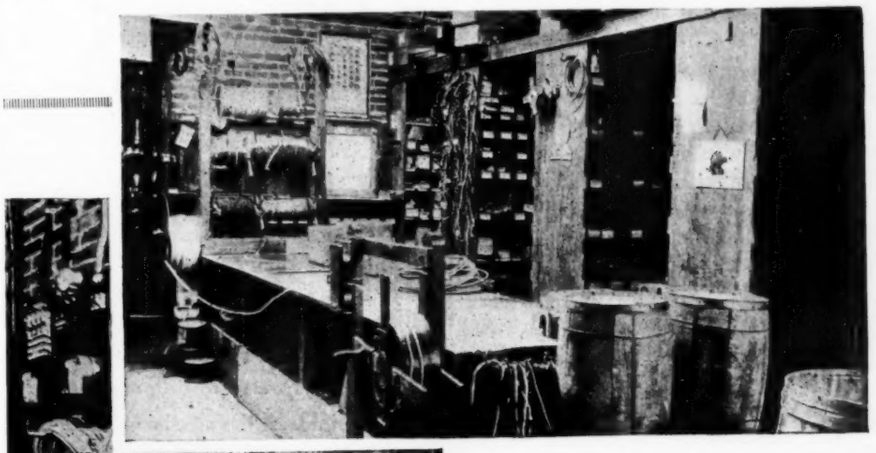
This California Contractor-Dealer Has Worked Out a System for Keeping His Own Profits Out of the Pockets of the Junkman

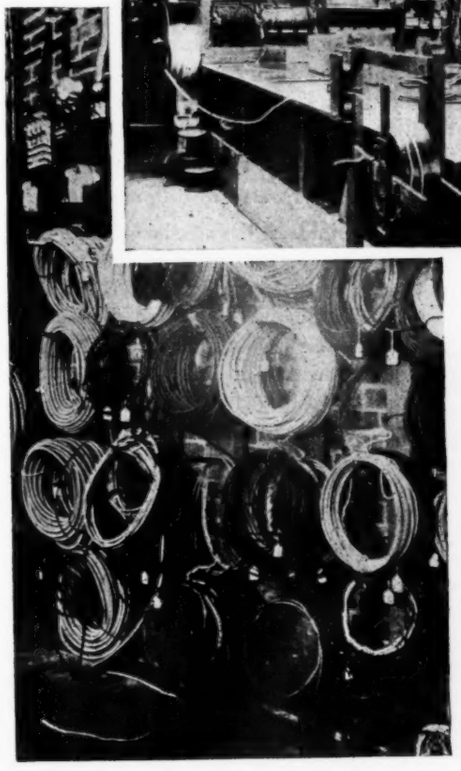
WASTE of materials and waste of time have been effectually stopped at Cline's Electric Shop, San Luis Obispo, California, by means of a rigid and well worked out unit system of keeping supplies and records. A new mechanic learns his way about this supply room in a few days. Every tool and every piece of material has its own place, and furthermore every article related to it in use will be found nearby.

When A. V. Cline took over the business some years ago the wastage in short pieces of wire and conduit and other odds and ends would fill a barrel and a box every six weeks. This outgo was a good piece of business for the junk man, who made regular calls to get it. Now the junk man's visits have been cut to not more than two a year.

This was accomplished by establishing the rule that all surplus wire brought in from a job should be measured and tagged. A measuring device was set up in the supply room, and soon there appeared an accumulation of odd coils of wire ranging in length from a few feet to several hundred. Each coil was tagged to indicate its ply and length. No mechanic is going to take out a full coil of wire to do a small job, knowing that when he returns he will have to measure up that large left over, coil it and mark a tag for it, when by glancing over the array of coils hanging against the wall he can find a piece of approximately the length he needs for the job in hand. Instead of a lot of broken lengths of wire of unknown quantity, inducing a man to take a full or nearly full coil in order to be sure to have enough wire, Mr. Cline now has a neat selection of known lengths. New coils are broken into only when the occasion demands, and the broken coils are used up rather than left over. This method has not only reduced the number of leftover pieces, but tends to make the men more careful with wire.

Conduit is handled in a similar way. It stands in full lengths upright in a specially constructed rack that prevents the possibility of its falling in any direction. Short pieces that come in from jobs are laid together at the feet of the long pieces until such time as the men find a little leisure on their hands. Then they piece out the shorts into full lengths and place them in their racks, ready for use.





The Photograph Above Shows the Stock Room and the Wire Measuring Table. That to the Left Shows How Broken Lengths of Wire Are Tagged and Stored

Throughout the supply room all materials are stored by classification. Meter equipment, roughing-in material, finish material, door bell equipment, ice machine equipment, motors, conduit, wire, sockets and plugs, pulleys and rope—all are placed by the unit system so that when you find one article you also find all that goes with it. If you were a new man at Cline's Electric Shop, and were assigned to a door bell job, all you would need to know about supplies would be the location of the door bell equipment. If you needed a buzzer, and couldn't find one right adjacent to the other parts that go into a complete door bell job, there wouldn't be any buzzer. It is in its place or it isn't there at all.

But Mr. Cline has little trouble with supplies running out, because his system takes care of the matter. Each bin where parts are kept has a card, and on this card is recorded the minimum number of parts below which the supply is not to fall. On the card also is given the number of new parts to order when that minimum is reached. The men are instructed to turn in want slips for any supplies they find at or below the fixed minimum, and the card, of course, tells them how much to order. This system is almost automatic; it does not require a frequent going over of

the stock to discover shortages. In fact, the owner can go into his supply room at any time and take a hurried inventory that would do very well for arriving at approximate figures on his stock.

Aside from stock keeping and saving of waste, this unit system avoids the common cause of lost time on a job. In the first place, the mechanics are most likely to start out with the complete materials they need, and in the second place, if they have to return to the shop for something, they can find it quickly, without looking all over the place for it. Everything has its place. Even the rope and pulleys are hung in one section of the room, from the ceiling. One look tells what is there.

There was a time when there was a certain amount of confusion about getting odd lengths of lamp and appliance cord for retail sale. Someone from the front office would rush back to the supply room to get a piece of cord. After searching among the spindles he would locate what he wanted, and then perhaps be unable to find a rule or tape to measure it with. All that has been done away with. All kind of cord is kept on large spindles at the end of a metal covered table some twenty feet long. On the surface of the table near the edge every foot length is plainly marked. Any one can measure off a length of cord by pulling the end of a piece along the table the required number of feet.

Upstairs in a little loft over the office is the fixture workshop. All wire and other materials needed for putting together a set of fixtures are within arm's reach of the man sitting at the workbench.

Unit Record System

Downstairs, just off the main floor of the retail department, is the fixture display and radio room, all compact. In a tiny closet opening into this room are kept all newspaper advertising electros and mats. Throughout the establishment all things that should be together are together. Even in the bookkeeping and filing of records the unit system is followed out. To look up something about a radio installation it is not necessary to go through a lot of data about wiring contracts and motor repairs.

The object has been to build a business that will stand on its own legs and not go to pieces when the owner is not personally on the spot. He makes frequent trips to neighboring towns, always observing the methods that other successful electrical contractors are using, especially where they operate retail departments.

Even in getting new business Mr. Cline seems to operate mentally on an alert unit system. Last year was a dry one in his territory, so he left the scrambling for construction contracts to his competitors while that line of work was dull and threw all his energies into developing the pump business among the ranches. The drier the season the more pumping is done, and he secured a very profitable volume of work in that connection. Nearly all the pumping being electrical in this section, the work came properly into his sphere.

Sesqui-Centennial Has a National Electrical Home to Show 50,000,000 Visitors

Philadelphia Electric Club Co-operates With Central Station and Manufacturers to Sell Electrical Idea to Millions of Exposition Sight-Seers

A GOLDEN opportunity to tell to almost half the population of the United States the story of the liveability of the well-wired and applianced home has been grasped by the electrical interests of Philadelphia. The means of doing this is the exhibition of an electrical home at the Sesqui-Centennial Exposition which opened in Philadelphia on June 1. Predictions are that the exposition will be visited by nearly fifty million people during the months it remains open.

Home Now Open

The home is being shown under the auspices of the Electric Club of Philadelphia, in cooperation with the Philadelphia Electric Company, the General Electric Company and the Westinghouse Electric & Manufacturing Company. Ground for the structure was broken April 22, and so rapidly did the work progress that the structure was completed and fully equipped in time for the official opening of the Exposition.

It is built as a twin house of characteristic Spanish design. Each section of the trim structure is a typical seven room American home, furnished in a style most popular among the average householders.

The electrical character of this home is emphasized to the visitor even before entering the house, with an electrically illuminated house number on the outer wall. After entering, the visitor finds himself in the living room. In addition to attractive electrical fixtures, this room is equipped with eight bracket outlets and a ceiling outlet. These are available for such devices as floor and table lamps and an electrically lighted fish bowl, an electric cigar lighter and other electric appliances, which the hostess might want to use. An additional feature will be an electric imitation of a coal fire in the fireplace.

This room is equipped, in addition, with radio plugs, as is every other room on both floors.

The second floor is given over entirely to sleeping rooms, bath room and nursery, all furnished and equipped. All the bed rooms, in addition to the regular lighting fixtures, have been equipped with base board outlets and wall outlets. The bath room is equipped with convenience outlets, while the nursery is displaying a novel lighting feature. By a special arrangement, floor lights have been placed, controlled from the main bed room, which will enable anyone getting up at night to turn on the lights, illuminating the lower part of the room only and thus preventing any disturbance of the sleeping children.

"National"

The building stands out at night in a striking outline in the rays of flood lights, while laid into the grass of the front lawn in electric lights is the name "National Home Electric." A manager will be present at all times, assisted by hostesses who will be stationed in each room, and who will explain in detail the various electrical appliances. According to present plans the home will be open to the public daily from ten a. m. to ten p. m. The arrangements for handling the throngs of visitors have been made so that spectators will enter at a given point, proceed from room to room and depart in another end of the building, and it is estimated that on the basis of this arrangement it will be possible to handle approximately sixty thousand visitors to the home daily.

Fixtures Show the Way

The Development of His Fixture Department Has Kept This Man's Contracting Business Healthy

By RUEL McDANIEL

THE ambition of most contractors is to get their business in such shape that they can pick and choose the jobs they want to do. In other words, the only jobs a contractor really wants to take are those that pay a real profit. But sometimes he is forced by competition or the necessity of covering the overhead of his business to accept work at lower prices than he knows he should get. However, there is one contractor-dealer who has solved the problem by making his fixture department lead the way.

Wiring and general electrical contracting are the principal business of the R. B. Kyle Electric Company, Pueblo, Colorado. Yet its fixture business could carry the whole organization along if it were ever necessary to call upon it to do so.

Demands Real Profits

The company sells fixtures and glass goods totalling around $25,000 a year. The rate of turnover is about three and R. B. Kyle, principal owner of the company, declares that the profit from the sale of these fixtures amounts to more than the operating cost of the entire business. This enables him to be somewhat independent in the matter of contract work, to the extent that he bids only on jobs that pay a real profit and at a price that enables him to give to the customer the best there is in the shop and the workmen. This stand has resulted in a rapid growth of the electrical contracting and house wiring department, rather than put a check upon it, for Mr. Kyle finds that a reputation built upon quality jobs is long lasting and favorable.

Back to the fixture department: It is to his method of buying, plan of display and method of handling broken and slow-moving lines that Mr. Kyle credits the growth of the fixture and glass goods department.

Although he works for a favorable rate of turnover, he considers the cost of fixtures of some importance. He does not favor stocking a lot of unknown, questionable merchandise, at a low price, but he does find it advantageous once in a while to buy well-known fixture and glass goods lines at special prices, such as any dealer has offered him occasionally.

Buying in Quantity

"I occasionally buy more fixtures and globes than I figure will sell normally in a year," he explains, "in order to make the most of the prevailing price at the time. But when I do buy in large quantities I make it a point to push the stock more than I ordinarily would, without, however, resorting to price slashing; and thus I often move as much goods in six months as I would move ordinarily in a year, simply because I realize that I have to move the stuff fast in order to increase my turnover and get my money out of it. That is one way of forcing yourself to push certain lines: Deliberately overbuy, then use some real selling ability to get rid of the stock quickly!"

Fresh Stock

An unusual feature is the freshness of the store's fixture stock, especially since it is so large. It is kept fresh by a careful checking of slow movers and odds and ends to see that they do not accumulate. Mr. Kyle does not hold regular clearance sales, but he does have a showcase set aside for slow-moving stock, and when he finds fixtures that apparently are becoming a part of the permanent interior he notes them and sets them aside. It is not long before some regular customer comes in and wants something inexpensive—something for a rented house perhaps.

Mr. Kyle shows this customer these "slow-movers," tells him what the former price was, what he wants for them now and just why he can afford to make an attractive reduction in this case. It enables the regular customer to get a good set of fixtures at a favorable price, and it helps the store to keep its stock clean and fresh.

"I buy about a third of my fixture stock unfinished," Mr. Kyle says. "This enables me to sell complete sets a lot of times, when, if everything I bought was factory finished, I couldn't supply a complete set. As it is, when a customer sees a fixture that he likes and we do not have a complete set of them we merely ask him to wait a day and we send unfinished jobs to our finishing room. In a half a day at the most we have a complete set of fixtures, finished in the tone the customer selected."

Glass goods and shades generally are handled in much the same way. There is one section of the long display wall case in the fixture room devoted expressly to slow-moving stock.

Wiring Helps Fixtures

A large part of the fixture sales comes either directly or indirectly from wiring jobs. When the company gets a wiring contract it naturally tries to sell fixtures for the house. And even though a customer of the contracting department does not buy his first set of fixtures from the company he is likely to come for individual pieces and for his next set if he is pleased with his wiring job.

One window is devoted almost entirely to the display of fixtures and shades, while practically half the store is used to hang fixtures and display the glass goods. This department is set off by a partition from the regular appliance section and the contracting department of the business.

Direct mail advertising is used freely to sell fixtures to builders of new homes; and some newspaper space is used to augment window and store displays. The company is able to sell more through displays than the average contractor, perhaps, because the store is located on a busy retail street.

The Electragist

Official Journal of the
Association of Electragists—International

S. B. WILLIAMS
Editor

H. H. STINSON
Associate Editor

The Heart of the Matter

"The intimate relationship between rates and use of energy by residential customers, with possible improvement in load factor as residential business grows, is reflected in a residential survey of 226 central station companies.

"These companies served about 6,500,000 customers (approximately 40% of all the customers in the United States) in a population of a little over 27,000,000.

"For fifteen companies having the highest rates, which ranged from 13.1 to 18 cents per kw-hr., there was an average residential consumption of only 194 kw-hr. per customer per annum. Twenty-seven companies whose rates were 7.1 to 8 cents per kw-hr. had an average residential consumption of 339 kw-hr. per customer per annum. So it went through the 226 companies; as the rate went down the residential consumption increased until it reached an average of 1171 kw-hr. per customer per annum for three companies having rates ranging from 1 to 3 cents per kw-hr.

"The companies with materially low residential rates had the better balance sheets, better public relations, and altogether were in a healthier condition.

Samuel Insull, President
Commonwealth Edison Company.
Before the recent N. E. L. A. Convention.

Read the last paragraph over again, remembering that Mr. Insull is without question the clearest thinker amongst all of the central station executives of this country. At Atlantic City right after the war he took a position diametrically opposite to that of all the rest of the power people and in less than a year conditions proved his contention.

Read the last paragraph again and remember that E. W. Lloyd, chairman last year of the N. E. L. A. Commercial Section, and the man who more than any one else has been responsible for the power company sentiment favoring cheap wiring as the means for increasing residential load, is vice president of Mr. Insull's company.

The power companies have so long been afraid of municipal ownership that the rate structure has been a sacred thing. It has always been easier to tackle business sluggishness with some artificial stimulant, such as reduced wiring prices and the Kennedy Plan of appliance sales without regard for profit, rather than the time proven plan of all business—attractive rates.

Mr. Insull, however, has cast sentiment aside and has gone right to the heart of the matter. He has shown that where the rates are low that consumption is heavier and the companies more prosperous. Of course, Mr. Insull could not fairly be expected to go the rest of the way. It might not, however, be improper to ask if the residential customers in the cities with the low rates and high consumption were not spending more money for wiring, wiring supplies, appliances and lighting equipment?

In other words, the electric light and power company is the steward of the public purse for electrical purchases. How well can it account for that stewardship? Has it, like the servant in the Bible, made its talents by good business methods bring forth more talents; or has it, like the servant who hid his talent, been too conservative and not done the things necessary to make increased consumption attractive to the public?

The manufacturers of wiring supplies have had their market from the wiring of new and unwired buildings. The unwired building market is about gone. Where will they turn?

There exists a tremendous market in already wired homes. Will the contractor be asked to persuade his customer to double or triple his present lighting bill? On the other hand, if rates were lower, would not the contractor be able to do more pick-up and rewiring in residences to the advantage of the manufacturer and jobber as well?

It is not a question of the central station charging the customer too much. No one ever said Henry Ford charged too much for his machine. He applied, however, a fundamental economic rule to his business, namely to bring the price down to the point where it was so attractive that sales were at a peak and unit costs and overhead at a minimum.

At the time of the introduction of the tungsten lamp the utilities became much alarmed because the new lamp used just one-third the current of the carbon lamp. What happened. They grew and made more money than ever because the new lamp made electricity cheap enough to use in abundance.

The lesson of fifteen years ago is just as true today. Lower rates instead of decreasing the revenue will increase it, because people will feel that they can use so much more electricity without increasing their bills so very much—and the utilities will admit that the increased cost of the additional consumption is almost altogether that for additional fuel, or less than half-a-cent per kilowatt hour for efficient stations.

You Need a Vacation

Everybody ought to take a vacation once a year, if for no other reason than to find out how good it is to get home again and get back to work. How can a contractor ever know whether or not his organization would function if he

were sick, or otherwise called away from his business, unless he went away occasionally?

By all means take a vacation this summer and if you feel that you ought not take the time away from the business just go to the Electragists' convention at Cedar Point, Ohio, in August and talk shop. Then you will be doing a thing most vital to your business—finding out how the other fellow does things that are bothering you—besides having the fun of a lake resort. Bring the family too—they will enjoy it and the rates are most reasonable.

What's the Matter

Why isn't the Red Seal plan making more progress? Why aren't more cities making application for license?

To date, after about two years of effort, but twenty-eight leagues have been licensed and only eight others have made application. Here is 1926 half gone, and only twelve licenses so far, ten of which were granted in the first quarter.

There seems to be a number of places that are nibbling at the hook, but why don't more take the bait?

In New England there is just one license—and that is in the smallest state, Rhode Island. What's the matter with Massachusetts, Maine, Vermont and Connecticut?

Why hasn't the biggest house building territory in the world—the New York City suburbs—taken hold? The plan was made for just such a market.

What is holding back the plan in New Jersey? With a state served almost entirely by one utility it ought to be a cinch to Red Seal the entire State.

Pennsylvania is doing well in Pittsburgh; but what of the Philadelphia region and the rest of the State.

The South is making great commercial strides, but aside from a few places the Red Seal idea isn't stirring.

Florida, the greatest real estate boom of the century—and not a Red Seal—why?

The great Middle West is represented by just twelve licensed leagues.

The Rocky Mountain and Pacific States have just two licensed leagues, although California has the distinction of being the first to operate the plan throughout the entire State.

The Red Seal presents a job that can be sold—not a job for the contractor to buy. It is a job that curbstoners can't do and stay curbstoners.

The central stations, if they were alive to the commercial situation, ought to jump at the chance to put the Red Seal into operation.

The contractors have in Red Seal an idea just built for them.

To the jobbers and manufacturers it means more wiring supply sales.

To the public it means a job of known quantity—an advertised trade marked value.

What then is holding the Red Seal back?

This question is asked in all seriousness and if there are any reasons we would like to have them by letter just as soon as possible.

Craftsmanship

In a recent issue we told of the efforts of the New York Building Congress to promote craftsmanship in the various trades by publicly giving awards to a journeyman and helper in each trade on certain jobs. This creates individual pride in workmanship.

Various cities have adopted the apprenticeship plan of creating craftsmanship. This is the group plan.

In numerous shops there are incentives for high grade workmanship such as no layoff, vacations, promotions, etc.

These are steps in the right direction, the only trouble being that there are so few of them. We need craftsmen—men who know how to do good work—men with pride in their work—men who can be trusted to go ahead without fear of their botching the job. Good craftsmen mean so much to every branch of the building industry.

Good craftsmen mean better estimating because it will be possible to measure the labor on a job in advance with more accuracy.

Good craftsmen will mean lower supervision costs.

Good craftsmen will mean less waste labor on a job because the men will be able to go ahead with fewer questions.

Good craftsmen will mean fewer violations of the Code because they will know what is right.

Good craftsmen will mean more satisfied customers.

Let us have more apprenticeship plans so that men may be taught their trade in a logical and intelligent manner and not have to depend on some journeyman showing them what to do. Let us have more plans for encouraging the craftsman spirit.

Craftsmen pay their way.

Paying Tribute

Recently the New York Electrical Board of Trade in its weekly Service Letter stated that a member had suggested that the letter would be an excellent advertising medium. "What is the feeling of other members," the chairman of the board, Charles L. Eidlitz, wanted to know. He found out right away. It was NO!

In another city the electrical contractors association is contemplating the publishing of a magazine for local distribution. Will the trade of that city look upon advertising in a local medium any differently from the trade of New York?

Advertising must be sold purely on the merits of the publication. If sold by association members or solicited by the association staff, it is very easy to regard it in the light of a contribution or "hold-up."

When the amount is small, such as a card in a four-page bulletin, the revenue from which merely covers the cost of printing the bulletin, no one minds. But when it runs into real money every month, there is apt to be a nasty kick-back before long.

Local associations will not build good will for themselves if they publish a magazine with paid advertising. Sooner or later the local trade will tire of paying tribute.

Association of Electragists
INTERNATIONAL

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118 Monroe Ave., Memphis, Tenn.

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AT LARGE
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U. S. Chamber of Commerce
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Gerry M. Sanborn 1908-1910
*Marshall L. Barnes 1910-1912
Ernest Freeman 1912-1914
*Deceased
John R. Galloway 1914-1916
Robley S. Stearnes 1916-1918
W. Creighton Peet 1918-1920
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List of Local Associations

STATE AND CITY	LOCAL SECRETARY	STREET ADDRESS
ALABAMA		
Birmingham (C)	J. R.Wilcox	2017 First Avenue
ARKANSAS		
Fort Smith (C)	Edward Ryan	Ft. Smith Lt. & Trac. Co.
CALIFORNIA		
Fresno (C)	Clyde L. Smith	1162 Broadway
Long Beach (L)	V. Ringle	So. Cal. Edison Co.
Los Angeles (C)	Helen I. Mikesell	1009½ S. Hill St.
Oakland (C)	Laurence R. Chilcote	Hobart & Webster Sts.
Pasadena (C)	H. W. Barnes	1531 N. Lake Ave.
Sacramento	L. W. Sherman	910 Ninth Street
San Francisco (C)	E. E. Browne	522 Call Building
Beverly Hills (C)	H. Barker	Beverly Hills
Santa Ana (C)	O. W. Robertson	303 N. Main St.
Eureka (C)	J. H. Hilfiker	1717 H Street
COLORADO		
Colorado Springs (C)	Matt Whitney	208 N. Tejon St.
Denver (C)	E. C. Headrick	89 Broadway
Pueblo (C)	E. F. Stone	So. Colorado Power Co.
CONNECTICUT		
Hartford (C)	A. A. Angello	473 Park Street
Waterbury (C)	D. B. Neth	107 West Main Street
Bridgeport (C)	L. E. Finch	529 Newfield Bldg.
DIST. OF COLUMBIA		
Washington (L)	P. A. Davis	1328 Eye S., N. W.
FLORIDA		
Bradentown (C)	W. S. Stewart	W. & S. Elec. Co.
Broward Co. (C)	Frank Swain	Orlando
Daytona Beach (C)	C. Leotah Benson	324½ S. Beach St.
Deland (C)	C. W. Allcorn	132 No. Florida Street
Fort Myers (C)	P. K. Weatherly	Thompson-Weatherly Elec. Co.
Indian Riv. Dist. (C)	I. O. Page	Vero Beach
Jacksonville (C)	W. H. Secrist	c/o Bay-Secrist Elec. Co.
Miami (C)	E. A. Robinson	118 N. W. First Ave.
Orlando (C)	D. E. Anderson	Ayers Electric Co.
Palm Beach (C)	James W. West	
St. Petersburg (C)	Gardiner Blackman	
Tampa (C)	P. C. Gray	Brown Electric Co.
GEORGIA		
Atlanta (C)	B. K. Laney	73 Walton St.
Savannah (L)	Sylvan M. Byck	Byck Electric Co.
ILLINOIS		
Chicago Electrical Contractors' Association	J. W. Collins	160 No. LaSalle St.
Master Elec. Contractors' Association	F. J. Boyle	175 W. Washington St.
Decatur (C)	Earl Weattherford	114 East William St.
Granite City (C)	M. E. Kilpatrick	Nildingham & State Sts.
Peoria (C)	L. B. Van Nuys	238 So. Jefferson St.
Rockford (C)	Donald Johnson	106 North Second St.
Springfield (C)	A. D. Birnbaum	916 West Cook St.
Wheaton (C)	E. C. Krage	133 West Front St.
INDIANA		
Gary (C)	A. B. Harris	570 W. Washington St.
Indianapolis (L)	R. E. Snyder	704 No. Alabama St.
Michigan City (C)	Walter A. Sassodeck	913 Franklin St.
Muncie (C)	Harry McCullough	113 W. Howard St.
South Bend (C)	R. A. Frink	1338 Howard St.
Terre Haute (C)	C. N. Chess	523 Ohio Street
IOWA		
Cedar Rapids (C)	H. E. Neff	94 1st Ave., West
Davenport (C)	Louis F. Cory	510 Brady Street
Fort Dodge (C)	J. A. Paul	16 South 12th Street
Sioux City (C)	E. A. Arzt	211 Fifth Street
Waterloo (C)	R. A. Cole	Cole Bros. Elec. Co.
KANSAS		
Salina (C)	C. G. Loomis	814 Cedar St.
Wichita (C)	P. W. Agrelius	Wichita
KENTUCKY		
Lexington (C)	J. H. Brock	235 East Main St.
Louisville (C)	C. L. W. Daubert	921 South Third St.
Paducah (L)	K. H. Knapp	c-o Paducah Electric Co.
LOUISIANA		
New Orleans (C)	I. G. Marks	406 Mar. Bk. Bldg.
Shreveport (C)	R. L. Norton	620 Marshal Street
MARYLAND		
Baltimore (C)	George S. Robertson	417 Park Bank Bldg.
MASSACHUSETTS		
Lowell (C)	William Kelleher	42 Middlesex St.
Haverhill (C)	H. W. Porter	14 West Street
Malden (Medford, Everett and Melrose) (C)	H. J. Walton	c-o Malden Electric Co.
Springfield (C)	A. R. Tullock	11-12 Court House Place
Worcester (L)	John W. Coghlin	259 Main Street
MICHIGAN		
Detroit (C)	N. J. Biddle	112 Madison Ave.
Grand Rapids (C)	T. J. Haven	1118 Wealthy St., S.E.
Kalamazoo	E. R. Hummel	1121 Seminary St.
Saginaw (C)	E. T. Eastman	209 Brewers Arcade
MINNESOTA		
Duluth (L)	Morris Braden	c-o Minn. Power & Light Co.
Minneaoplis (C)	W. I. Gray	209 Globe Building
MISSOURI		
Kansas City (C)	A. S. Morgan	4 E. Forty-third St.
St. Louis Electragists' Ass'n (C)	W. F. Gerstner	120 No. Second St.
Electric Employers' Association (C)	G. L. Gamp	Wainwright Bldg.

STATE AND CITY	LOCAL SECRETARY	STREET ADDRESS
NEBRASKA		
Lincoln (L)	George Ludden	1329 N Street
Omaha (C)	E. H. Brown	1818½ Harney Street
NEW JERSEY		
Long Branch (C) (Asbury Park and Red Bank)	Austin Hurley	Campbell Ave., Long Branch
Newark (C)	Paul H. Jaehnig	435 Orange Street
Paterson (C)	R. Marshall	106 Academy St.
Philipsburg (See Lehigh Valley, Pa.)		
NEW YORK		
Buffalo (L)	W. R. Prosser	87 W. Tupper St.
Brooklyn (C)	H. F. Walcott	60 Third Avenue
Jamestown (C)	Henry M. Lund	309 Main Street
Nassau-Suffolk (C)	Henry T. Hobby	55 Front Street, Rockville Centre, L. I.
New York City Section No. 1 (C)	M. J. Levy	70 East 45th Street
Independent (C)	Albert A. A. Tuna	127 East 34th Street
Metropolitan (C)	George W. Neil	96 Beekman St.
Niagara Falls (C)	E. M. King	515 Niagara Street
Rochester (C)	Theo. T. Benz	278 State Street
Schenectady (C)	Richard Spengler	421 McClellan Street
Syracuse (C)	Fred P. Edinger	802 East Water St.
Utica (C)	W. C. Ballda	228 Genesee Street
Westchester Co. (C)	Jack Lalley	14 Mnr. Hse. Sq., Yonkers
Yonkers (C)	Louis Mayer	485 South Broadway
OHIO		
Akron (C)	E. C. Rishel	540 East Avenue
Canton (C)	H. S. Hastings	301 New Vickery Bldg.
Cleveland (C)	D. S. Hunter	Bulkley Bldg.
Columbus (L)	O. A. Robins	1242 Oak Street
Toledo (C)	Fred C. Dunn	Builders Exchange
Dayton (C)	Clarence Carey	1107 South Brown St.
Marion (C)	O. H. Cornwell	401 W. Center Street
Massilon (C)	F. D. Mossop	c-o Mesco Electric Co.
OKLAHOMA		
Pawhuska	C. G. Sego	Pawhuska
PENNSYLVANIA		
Altoona (C)	Walter Bracken	Leechburg
Allegheny Valley	E. G. Jackson	12 West Third Street
	W. H. McMillan	12 E. Long Avenue
Chester (C)	C. E Blakeslee	11th and French Sts.
Du Bois (C)	R. D. Goff	
Erie (C)		
Harrisburg (C)	W. W. Weaver	1605 N. 3rd Street
Lehigh Valley (C)	A. W. Hill	Main and Market Sts., Bethlehem
Philadelphia (C)	M. G. Sellers	1202 Locust Street
Pittsburgh (C)	Fred Rebele	1404 Commonwealth Bld.
Wilkes-Barre (L)	Ambrose Saricks	25 No. Main Street
RHODE ISLAND		
Providence (C)	H. E. Batman	36 Exchange Place
SOUTH CAROLINA		
Charleston (L)	J. P. Connolly	141 Meeting Street
SOUTH DAKOTA		
Sioux Falls	H. W. Claus	326 S. Phillips Ave.
TENNESSEE		
Chattanooga (L)	P. W. Curtis	725 Walnut Street
Knoxville (L)	Jerry G. Cason	303 West Church St.
Memphis (L)	J. J. Brennan	12-16 So. Second St.
Nashville (C)	J. T. Shannon	c-o Electric Equip. Co.
TEXAS		
Beaumont (C)	J. A. Solleder	Houston & Bolivar Sts.
Dallas (C)	F. B. Seastrunk	2032 Commerce St.
Houston (C)	J. W. Read	715 Capitol Avenue
UTAH		
Ogden	B. Kristofferson	2249 Washington Ave.
Salt Lake City (C)	C. Louis Collins	215 Kearns Bldg.
VIRGINIA		
Lynchburg (C)	J. L. Fennell	c-o Fennell & App
Norfolk (L)	A. W. Cornick	200 Plum St.
Richmond (C)	E. M. Andrews	15 N. 12th Street
WASHINGTON		
Seattle (L)	P. L. Hoadley	Seaboard Building
Spokane (C)	William Stack	W. 1121 Cleveland St.
WEST VIRGINIA		
Wheeling	Peter J. Erb	1414 Eoff St.
WISCONSIN		
Green Bay (C)	V. E. Grebel	531 S. Broadway
Madison (C)	Otto Harloff	602 State Street
Milwaukee (C)	R. H. Grobe	1604 Wells Street
Racine (C)	William Larsen	1430 Junction Ave.
CANADA		
Montreal (C)	George C. L. Brassart	674 Girouard Ave.
Toronto (C)	M. McRay	24 Adelaide St., N.E.
Vancouver (C)	J. C. Reston	579 Howe St.
Winnipeg (C)	Fred Ball	300 Princess St.

(C) designates exclusively Contractor-Dealer organization.
(L) designates an Electrical League

JUNE ACTIVITIES

Unarmored Assembly Rules Returned to N. F. P. A. by Standards Committee

Executive Committee of Fire Protection Association Meets to Consider Request for Greater Unanimity of Opinion on Rule 507 of Electrical Code

THE controversy concerning rules for the use of unarmored assemblies was still unsettled as this issue went to press, the American Engineering Standards Committee having referred back to the National Fire Protection Association the code changes embodying these rules. In returning the code to its sponsor, the A. E. S. C. pointed out that the action was taken only because it was hoped that a greater unanimity of opinion might be secured on the subject. A meeting of the executive committee of the N. F. P. A. was scheduled on June 29 to consider this request.

As recounted in THE ELECTRAGIST, these rules had been approved by the N. F. P. A. at its Altantic City convention in May and the usual procedure was followed in submitting them to the A. E. S. C. for approval as an American standard.

This application came first before a special committee which met in New York on June 9 under the chairmanship of A. W. Whitney. At this meeting the Associated Manufacturers of Electrical Supplies presented a communication from its board of governors, declaring that the admission of the rules on unarmored assemblies would retard the development of inspection uniformity under the code and would also strike a serious blow to both the integrity and prestige of the National Electrical Code. This communication also asked that the rules be referred back to the Electrical Committee with the hope that a compromise might possibly be reached between the minority and majority members of that committee.

A lengthy meeting followed the presentation of this communication, resulting in the recommendation that the code be referred back to its sponsor. The following resolution was passed:

Your Special Committee recommends as follows in regard to the approval of the "National Electrical Code," submitted by the National Fire Protection Association as sponsor:

The special committee believes that the action of the sectional committee was taken by a substantial majority and appeared to represent the best conclusion attainable at the time and under the conditions obtaining in this field.

In the hope, however, that a closer approach to unanimity may be obtained it is recommended that the A. E. S. C. refer the code back to the sponsor with the request that an attempt be made to secure a more general agreement, and that this reference be made without prejudice to further consideration of the present form of the report by the A. E. S. C. at its September meeting in case a greater degree of unanimity is not secured in the meantime.

It is further recommended that the A. E. S. C. agree that in the meantime the sponsor may, on its own responsibility, issue the present form as a tentative version for field application, but subject to further consideration and possible revision.

Your committee believes that the personnel of the sectional committee was representative and adequate, and that the action of the sectional committee and of the sponsor was entirely regular.

At a meeting the following day the main committee of the A. E. S. C. unanimously approved the recommendation of the special committee. At this meeting, C. E. Skinner, chairman, stated that he is prepared to call a special meeting of the organization before its regular September meeting, if the sponsor was ready to have the matter of compromise rules considered before that time. As told in the next column, such compromise rules have already been suggested to the sectional committee of the N. F. P. A.

In a statement given to THE ELECTRAGIST, Dr. P. G. Agnew, secretary of the A. E. S. C., pointed out that the action of the standards committee had not taken the merits or demerits of the rules into consideration, the policy being to leave those matters to the judgment of the sponsoring body. Greater unanimity of opinion was the thing desired, he said, it having been the practice of the A. E. S. C. not to declare anything an American standard if any major interest in the particular industry opposed it.

The resolution of the standards committee was immediately communicated through the N. F. P. A. to its sectional committee. A. R. Small, chairman of that committee, refused to predict what action might be taken on the request, but stated that a meeting of the executive committee, N. F. P. A., was scheduled to be held in New York City on June 29, at which time the resolution would be considered.

No precedent for dealing with such a situation exists, according to those familiar with the procedure of the fire protection body. Its constitution and by-laws neither specifically permit nor prohibit the executive committee action of reversing a decision which has been arrived at in an open meeting of the association.

It is not thought that the situation will have any immediate effect on the matter of uniform ordinances, since ordinances embody the 1925 code, which remains an American standard.

Electragists Propose Sheathed Cable Compromise

A compromise set of rules for the use of nonmetallic sheathed cable has been proposed by the Association of Electragists as a substitute for the rules adopted this spring by the Electrical Committee.

It has been apparent for some time that the rules adopted this year would result in numerous local rulings against the use of this material with the result that there would be a greater tendency to disregard the Code and to draw away from a national standard. Furthermore, the very purpose of the Electrical Committee would be defeated.

Accordingly Laurence W. Davis, General Manager of the Association of Electragists has presented to the Chairman of the Electrical Committee the accompanying proposed compromise rules and with the following letter of transmittal:

Acting for the Association of Electragists, International, I beg to submit to the Electrical Committee of the National Fire Protection Association for its consideration the attached draft of

proposed rules covering non-metallic sheathed cables for revision of the present National Electrical Code rules.

These rules are submitted for the early consideration of the Electrical Committee through its proper Article Committee in the belief that they hold a more reasonable restriction as to the conditions under which this new wiring method may be employed, which may bring together the present widely conflicting viewpoints towards this new wiring method, without setting up any restrictions affecting the cost of installation which would impede a broad and fair trial in the field for which it is best fitted.

It is evident that the adoption of any National Electrical Code rules which do not have the widest possible approval of all inspectors, contractors and other groups inevitably leads to the establishment of special local rulings in conflict with the Code, and tends to destroy the integrity of the Code as an American standard.

It is our hope that the proposed rules submitted herewith to the Electrical Committee limiting the use of this wiring method to light and appliance branch circuits in residence occupancies, and permitting its use in exposed wiring work as well as concealed wiring when protected in exposed work within five feet of floor by wood or metal protecting strips and in no place run along the wall nearer than six inches above the floor, will provide a common ground for approval upon which all groups may be harmonized to give this wiring method a fair trial under broad usage.

So radical a change in the standards maintained for years by the National Electrical Code as is represented in this new wiring method, if it is to hold the confidence and support of all users of the Code, should require a cautious and reasonably restricted use of such new methods until its elements of field hazards may be determined, and we submit these proposed rules covering non-metallic sheathed cable in the belief that they will provide a broad trial with necessary caution in the determining of its field hazards, and will lead to such intelligent revisions of the Code later on as may seem to be wise.

We request that the proposed rules for use on non-metallic sheathed cable be submitted to the proper Article Committee for its earliest consideration.

Respectfully yours,

LAURENCE W. DAVIS,
Secretary.

Suggested Compromise Sheathed Cable Rules

Italicized portions quoted directly from present majority rules.

N. E. C. 507.

(a) Shall not be used except for light and appliance branch circuits not exceeding 300 volts between conductors.

(b) Shall be of approved *types and of 2 or 3 conductor assemblies in sizes Nos. 14 to 8, inclusive.*

(c) Shall be used only in residence occupancies.

(d) May be used *where in exposed wiring work* under the following conditions:

(1) *Shall be mounted directly upon surfaces of woodwork, plaster, cement, brick or other building finish.*

(2) *Shall be secured between outlets with approved fastenings spaced at intervals not exceeding 4 feet.*

(3) *Shall be used only in dry places,* and in no place run along the wall nearer than 6 inches above the floor.

(4) Shall be protected within 5 feet of floor by wood or metal protecting strip placed over the cable and securely fastened in place.

(e) May be used where in concealed wiring work under the following conditions:

(1) Shall be used only in dry places; in wood joist or stud partitions, floors and walls.

(2) Shall be fished in continuous lengths from outlet to outlet.

(3) The new work should be left free of supports so that it may be withdrawn for inspection.

(f) Shall be run without joints, splices or taps from outlet box to outlet box (or junction boxes or plates).

(g) Shall be provided with approved outlet (or junction) boxes at each outlet, into which the cable shall be run and to which it shall be rigidly *fastened* by means of approved *fittings.*

It is recommended that for all side wall and partition outlets in concealed work in new buildings under construction outlet boxes having a depth of approximately 1½ inches be used. If cable enters boxes from side in concealed work, boxes of such depth are required.

(h) All bends shall be so made and other handling shall be such that the non-metallic covering of the cable will not be injured.

(i) *Shall not be buried in plaster, cement or similar finish.*

(j) When non-metallic sheathed cable is installed in conduit the provisions of Section 503 of this article shall apply as far as practicable.

(k) *When in exposed or in concealed wiring, non-metallic sheathed cable is run through holes in studs, joists or similar wood members, the holes shall be located at the approximate center of studs and not less than 2 inches from the nearest edge of joists or other members whose depth permits this spacing.*

(l) *In attics and accessible roof spaces cable shall be considered exposed to mechanical injury, if run on upper edge of joists and shall be protected* by suitable wood or metal strips laid over the cable and securely fastened in place.

Canadian Electrical Code Nears Completion

Discussion of the preliminary draft of a Code covering proposed rules and regulations for electrical installations in, on or over buildings, using potential of 10-5,000 volts, took place at a meeting during May of the special committee appointed by the Main Committee of the Canadian Engineering Standards Association. This draft has been prepared as authorized by a meeting of the association held last year.

Since this previous meeting copies of the draft code had been submitted to various Provincial Sub-Committees and comments received from them. These comments were carefully considered at a meeting held recently in Ottawa and were taken account of in revising the draft.

It was the consensus of opinion that rules covering both fire hazard and personal safety should be combined in the same code and it was attempted to make this code conform as far as possible to the National Electrical Code and the National Electrical Safety Code.

Florida Electragists Seek State Inspection Law

A uniform electrical inspection law to replace the divergent laws now existing in the various municipalities of Florida was drawn up and tentatively adopted by the Florida Association of Electragists during its quarterly meeting in the Seminole Hotel, Jacksonville, on May 17.

It will be presented to the next legislature for passage after the association has passed finally upon it during its meeting in Tampa in August.

More than one hundred of the leading electrical contractors of Florida were present when the session opened with an address of welcome by Mayor Alsop who warmly praised the electragists on their effort to maintain a high standard of work in Florida and for their part in lessening fire hazards by careful electrical installation.

After Mayor Alsop's speech the electragists held a business session which ended at 11 o'clock when Frank Norris, vice president of the Barnett National Bank, spoke on "Credits for the Contractor."

There was a second business session in the afternoon, followed by a banquet in the evening.

Malone Heads Daytona Beach Contractor-Dealers

F. H. Malone was unanimously elected president of the Daytona Beach Electragists' Association and the membership of that organization became affiliated with the Daytona Beach Builders' exchange at a session held recently at the exchange's headquarters, Beach street and Cottage avenue.

George Van Deusen was elected treasurer and Miss C. Leotah Benson secretary by the electragists' group. Adoption of a constitution and bylaws was also effected.

Although the association has just recently perfected a permanent organization, it was one of the most active participants in the Daytona Beach home show held during May. A picture of the association booth is shown here. In addition to handling their own booth the association wired all the other booths and supplied fixtures for all of them. The effect was that of a gigantic fixture room.

McGraw Award Entries Being Received

The McGraw Award of a bronze medal and one hundred dollars in gold for the outstanding achievement during the past year within the electrical contractor-dealer industry will be awarded at the annual convention of the Association of Electragists in August. The committee, therefore, has but two months left in which to receive entries for this year's award.

In making the announcement this year the committee states that it "will welcome suggestions from any source that will assist in guiding the judges to the work of men whose services to the electrical industry should have consideration under these awards. Individuals are invited to submit to the committee frank statements of contributions they themselves have made to industry advancement, and to suggest services rendered by others in the spirit of these awards. Employers are urged to recommend the work of members of their organizations. Officials of electrical associations and leagues are asked to see that the achievements of their members and staff employees are not overlooked. All such communications will be received in strict confidence."

All inquiries should be addressed to The James H. McGraw Award, care of the Society for Electrical Development, 522 Fifth avenue, New York, N. Y.

Last year the contractor-dealer medal was withheld, but certificates of honorable mention were given to A. Penn Denton of Kansas City for his work in establishing local Code committees; Robert A. Goeller, New York, for his cross index and guide to the National Electrical Code; Walter H. Taverner, New York for a graphic method of job cost control and to William J. Ball, Moline, for a cooperative scheme to move frozen stock.

This Booth Was One of the Most Attractive at the Daytona Beach Home Show

South Dakota Electragists Favor Tri-State Meeting

A tri-state electragist meeting, to take in contractors in Iowa, Nebraska, and South Dakota, was favored by the South Dakota Electragists at their second annual meeting, held at Yankton on May 12. If plans go through the meeting will be held at Sioux City, Ia., some time during 1927.

Action on a state ordinance was postponed until the next meeting of the association which will take place at Sioux Falls, S. D., during September.

Officers for the next twelve months were elected as follows: Mark J. Hurlbut, Chamberlain, president, and Frank Shuff, Yankton, secretary-treasurer.

California Jobbers Co-operate for Better Credits

The second series of meetings of the executive committee of the California Electragists, Southern Division, with the jobbers of Los Angeles, has come to a close with good results. Credit extensions, it is reported, will be investigated and new accounts more carefully checked, and there is a noticeable tendency on the part of the jobbers to cooperate. Follow-up meetings with jobbers' salesmen are to be instituted soon.

Central Stations, Contractors, Jobbers and Manufacturers to Hold Joint Conference on Wiring

Fact-Finding Body to be Organized for Purpose of Determining Present Trend in Cost of Wiring and Effect of High Wiring Standards on Spread of Electricity

A JOINT conference of the four principal branches of the electrical industry is now being organized as a fact finding body to make a thorough study of the cost of wiring and the influence of various wiring methods on the progress and adequacy of wiring installations, particularly in houses.

The central stations have come out against right standards of wiring on the ground that they curtailed the use of energy. The Electragists contend that if there has been any curtailment in energy it has come as the result of something other than the cost of wiring. Inasmuch as the controversy involves not only the market for energy but for wiring, wiring supplies and appliances as well, the Association of Electragists and the wiring committee of the National Electric Light Association have jointly invited Earl E. Whitehorne, commercial editor of *Electrical World*, to take the initiative as a neutral individual associated broadly with all branches of the electrical industry, to call together representative delegations from the four associations of the electric power companies, contractor dealers, manufacturers and jobbers to develop the needed facts.

Participants

Mr. Whitehorne agreed to undertake the work provided that the Electrical Manufacturers' Council and the Electrical Supply Jobbers' Association also desired to participate in such a conference and requested him to serve as its chairman and together with the N. E. L. A. and A. E. I. were willing to support such a market study financially and otherwise within the judgment of their respective delegates. The plan has now been laid before the governing bodies of the manufacturers and the jobbers and both organizations have voted unanimously in favor of the program. The delegations which will represent the four associations in the conference are now in process of appointment but will not be announced until after the meeting of the N. E. L. A. executive committee late in August.

For the purpose of indicating the general lines along which this joint conference on the trend of wiring may be expected to direct its survey, unofficial and purely tentative suggestions have been considered by each of the organizations participating, in the form of the following ten questions to which the conference might well seek to find the answers:

Suggested Topics

1—What is the present trend in the cost of wiring?

2—Is the present cost of wiring retarding the installation of electric lighting and appliances or restricting the adequacy of installations?

3—What is the present trend in the adequacy of wiring?

4—What influences are today encouraging or restricting the adequacy of wiring installations?

5—What is the influence on the progress of house wiring of different systems of electrical construction required by municipal regulations within a community, such as a "rigid conduit only" and the "all metal standard"? Are a larger percentage of houses being wired or are wiring installations more adequate where "knob and tube work" is common or where non-metallic sheath cable has been extensively used?

6—Is excessive cost of wiring, if and where found today, chargeable to over-expensive material or to an abnormal scale of wages for labor, or to restrictions on the output of labor?

7—Are present wiring methods wasteful and does the cause appear to be super-standards of quality in wiring materials and equipment, or lack of training and skill in workmanship?

8—If buildings, old and new, are not being wired in sufficient number or adequately wired, how often is the restraining influence the high cost of electric current?

9—Is the progress of house wiring being held back to any extent by over-restrictive policies on the part of the central station in regard to extensions or capacity or readiness to serve?

10—Is slow progress in the wiring of houses and the inadequacy of installations commonly chargeable to lack of cooperation between the contractors and the central stations, and who is most responsible?

Farm Electrification Arouses Interest

Contractor-dealers in New York State will go more strongly into the work of electrifying farms within reach of central station lines as the result of action taken at the twenty-seventh annual convention of the New York State Association of Electrical Contractors and Dealers, held at Schenectady, June 14-15.

The subject was introduced in an address by John L. Haley, vice president of the Adirondack Electric Company. At the conclusion of the talk a committee was appointed with members representing different parts of the State, to work in conjunction with utilities.

The first business session was held in the Edison Club. At this session there were addresses by Laurence W. Davis, general manager of the A. E. I., on "What the Electragists Are Doing," by Stanley A. Dennis, editor of *Electrical Record*, on "The Red Seal Plan"; by J. C. Forsyth, supervising engineer of the New York Board of Fire Underwriters, on "Regulation by Inspection and Its Results (printed in full on Page 13); and by O. H. Caldwell, editor of *Electrical Merchandising*, on "Looking Ahead Five Years in the Electrical Business."

That evening there was a dinner dance at the Hotel Van Curler, with 153 in attendance.

The session of June 15 was opened with Mr. Haley's talk on farm electrification and this was followed by election of officers. The new officers are: A. Lincoln Bush, New York City, president; L. R. Rogers, Schenectady, vice president; James F. Burns, Schenectady, treasurer; Herbert F. Janick, Rochester, secretary; Fred H. Newman, Albany, director for two years; and Louis Freund, New York City, director for two years.

Adjournment was taken at noon to attend a luncheon at the plant of the General Electric Company, where the delegates were addressed by A. L. Atkinson, C. F. Scott and Major Button and Mr. Barry, all of the General Electric Company.

Strike Leads to Fight on Licensing

An attack is being made on the legality of the licensing section of the municipal electrical ordinance of Charleston, W. Va., by contractors who, in resisting a strike of union electricians, have brought non-union men into Charleston and put them to work before obtaining a journeyman's license. The union has made a complaint to the city officials and has had the non-union men subpoenaed into police court for failure to comply with the ordinance.

The non-union men stated that they were working as helpers and not as journeymen and the judge ruled that these men could work as helpers as long as there was a licensed master electrician on the job.

During the hearing an attorney for the defense stated that he doubted the legality of the licensing section of the ordinance and this may be fought out if the case is carried further in the courts.

End Labor Dispute on Channels in Masonry

Union electricians will be allowed to cut chases and channels in brick, tile and masonry where required for the installation of their work, according to a decision just made by the National Board for Jurisdictional Awards. This work has been claimed by the bricklayers, plumbers and steam fitters and electricians and it was decided that it was the work of the bricklayers except where the other trades had to do cutting where required for the installation of their work.

All-Metal Code Story Taken to Public

The story of the all-metal code and its advantages was told to the public by the Glendale members of the California Electragists recently. The occasion was a merchant's exposition held in that city at which the contractors had an exhibit designed to show the hazards of faulty electrical installation. All-metal was specifically advocated.

Literature was distributed to visitors explaining all-metal benefits and a number of the visitors asked to have their installations inspected and brought up to date.

An interesting feature of the booth was a display of defective materials and parts taken from buildings in which they had caused fires.

New Electragists

The following contractor-dealers have made application for membership and been accepted into the A. E. I. since the publication of the last list in the June issue:

CALIFORNIA

Arroyo Grande:
Turney Electric Shop

Hayward:
Frank Electric

Sacramento:
Wm. H. Beamer
Louis M. McGinnis

CONNECTICUT

Bridgeport:
Silverstone-Ervin, Inc.

FLORIDA

Dania:
LaBree Electrical Co.

Tallahassee:
Quarterman Elec. Co.

West Palm Beach:
Artistic Fixture Co., Inc.
East Coast Elec. Co.

ILLINOIS

LaGrange:
The Carey-Beckman Co.

MARYLAND

Annapolis
Freeman Elecl. Co.
Puncheon & Strange
Simpson Elec. Constr. Co.
Roddy Lighting Co.

Baltimore
Broadway Elecl. Co.
L. Edward Elliott
Holmes Elec. Co., Inc.
Riggs Distler & Co., Inc.
G. S. Thornton & Co.
United Gas-Elec. Eng. Co.
August W. Weber

MICHIGAN

Detroit:
DeSimpel Bros.
Foster-Scott Co.
W. J. Graham
K. H. Grimes
Northwestern Electric
E. A. Pearson
J. W. & H. Speke
George H. Thorpe Elec. Co.
Richard Webb
Wilkinson & Wells

Grosse Point Park:
Walter Krausmann

Halfway:
Halfway Electric Co.

River Rouge:
Clark's

MINNESOTA

St. Paul:
Electric Sup. & Constr. Co.

NEW JERSEY

Clifton:
Cole Electric Co.

Plainfield:
P. A. Caruso
Reynolds & Foster

Paterson:
Leonard DeBlock
J. R. DeMott

Ridgewood:
Suburban Elec. Co.

NEW YORK

Yonkers:
Mayer Elec. Co.

NORTH CAROLINA

Asheville:
Matthew Elec. Co.
Van Valkenburgh Elec. Co., Inc.

Greensboro:
T. J. Burns & Co.

West Asheville:
Harrison Elec. Co.

PENNSYLVANIA

Altoona:
Max Miller Elec. Store
J. E. Spence Elec. Store
Buechele Electric
Juniata Elec. Co.
S. A. Weamer

Butler:
Electric Supplies & Equip. Co.
McKeown Elec. Co.

Hollidaysburg:
R. E. Williams

Kingston:
Thomas Taylor

Kittanning:
Kittanning Elec. Shop
Wallace R. Mechling Co.
Orr Ave. Elec. Shop

Leechburg:
Leechburg Elec. Sup. Co.

Narberth:
Narberth Elec. Shop

South Williamsport:
Howard W. Hartman

Springdale:
Heyd's Elec. Shop

Wilkes-Barre:
Frances T. Brown
W. E. Burland—Electric Construction
John Hreno
Frank Noonan
Leon N. Sell

WEST VIRGINIA

McMechen:
McMechen Elec. Co.

Warwood:
Electrical Shop

Wheeling:
Erb Electric Co.
Electra Eng. & Constr. Co.
Owen J. Friery
Hammer Elec. Co.
W. H. Hess
Imperial Elec. & Machinery Co.
H. E. Kraeuter
Lawrence Elec. Co.
R. I. McKelvey
Jos. Rhodabarger
J. K. Thompson
United Elec. Co.
V. & G. Electric Co.
Chauncey Wilson
Harry V. Yahn

SOUTH AMERICA

Cartagena, Republic de Columbia:
Peter Vandeyar

Philadelphia Association Elects

At the quarterly meeting of the Philadelphia Electrical Contractors' Association, held at the Hotel Adelphia, June 10, Edwin Hulley, Hulley Electric Company, Inc., was elected president and Harry B. Frazer, Frazer & Company, was elected vice president.

A luncheon was served and a business session was called to order immediately following. One of the features of the business session was the discussion of a trade policy which would be fair, sound and logical in its appeal to contractors as a cardinal business principle.

It was stated that the efforts of the Philadelphia association would be directed to making the state convention, to be held in Philadelphia, one of the best in the history of the state association.

Statewide California Meeting in October

The annual meeting of the California Electragists has been announced for October 1-3. It will be held at Del Monte.

Camp Co-operation Reservations

Within a week of the sending out of the invitations to Camp Co-operation VI some 53 requests for reservations have been received from 20 leagues in the United States and Canada. Those desiring to attend are urged to act promptly on their invitation as the accommodation at Association Island is limited.

Northern California Electragists Discuss Red Seal

The progress of Red Seal work in California was one of the important topics of discussion at the quarterly convention of the California Electragists, Northern Division, held at Sacramento in the latter part of May. It was stated that 146 Red Seal homes had been built in California to that date, the plan having then been in operation three months. This had meant, it was said, a fifty percent increase in the amount of wiring installed.

A general open meeting was held with C. Felix Butte, vice president, presiding. This was addressed by Rollin Smith, Rollin Smith Engineering Company; George Eldridge, field representative of the Northern Division of the California Electragists, and C. J. Geisbush, executive secretary of the Southern Division.

Denver Contractors Elect

P. Harry Byrne

P. Harry Byrne will head the Denver Association of Electrical Contractors and Dealers during the next twelve months as the result of the annual election, held last month. C. N. Shannon was elected vice-president and E. C. Headrick secretary-treasurer. These three, with W. A. J. Guscott and W. R. Kaffer comprise the board of directors.

OBITUARIES

John A. Daum

John A. Daum, president of the Daum & Wilson Electrical Supply Company, Pittsburgh, died during the latter part of May after a brief illness. He was sixty-four years old and had been connected with the electrical business for many years.

Major Alexander Laughlin

Major Alexander Laughlin, Jr., president of the Central Tube Company of Pittsburgh, died June 12 in a Pittsburgh hospital, while under anaesthetic for a dental operation. Major Laughlin won his military title during the World War while serving with the Eighty-Fourth Division.

In addition to his duties as head of the Central Tube Company, he was associated with the engineering firm of Alex Laughlin & Company and was a Director of the Verona Tool Works and the Monongahela National Bank of Pittsburgh. He became president of the Central Tube Company in 1919, succeeding his father, Alexander Laughlin, Sr.

News Notes Concerning Contractor-Dealers

The B. J. Still Electric Company has opened a large new store at 1116 Main street, Houston, Tex.

A new electrical store has been established at Rockford, Ill., by the Universal Electric Company which recently purchased the electrical business of De Forest Brothers.

E. J. Sayre has disposed of his interest in the Han Electric Service, Knox, Ind., and will operate his own business.

Clayton Finch, until recently city electrical inspector of Deland, Fla., has entered the commercial end of the business, having established his own electrical shop in Deland.

A half interest in the L. L. Bender Electrical Shop, Bluffton, Ind., has been purchased by Dwight Fritz.

One of the oldest business houses in Schenectady, the James F. Burns Electrical Works, will move to new and larger quarters on August 1, the new address to be 206 Clinton street.

Louis I. Weber, for many years in the electrical business in Nyack, N. Y., has announced his intention to retire.

C. J. Rice has opened the Westgate Electric Shop, Columbus, Ohio.

A branch office has been opened in Yorkville, Ill., by the Tri-County Electric Company of Hinckley, Ill.

The Turner Electric Company, Elmira, N. Y., has sold its automotive electrical department to W. H. Ritter.

A new electrical store has been established at 204 Wanaqua avenue, Pompton Lakes, N. J., by the Lank Electric Company.

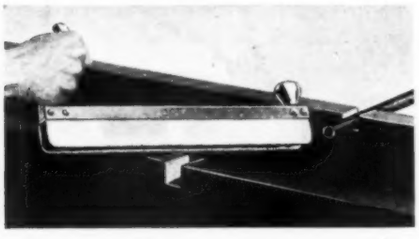
•MANUFACTURING•

A Department Devoted to the Latest Devices Used by the Electrical Contractor and Dealer

Joist Notcher

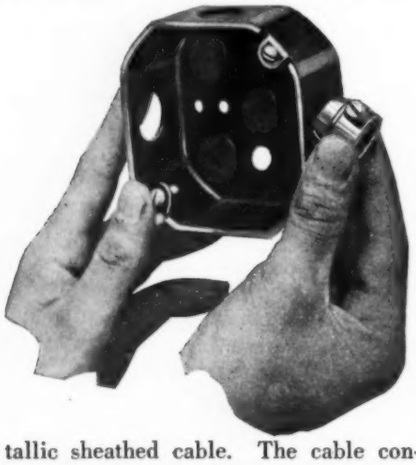
Paul W. Koch & Company, 25 South Wells street, Chicago, are now marketing another new "Jiffy" labor-saver, the joist notcher. This is a two-bladed saw adjustable for cutting slots in joists for either ½-in. or ¾-in. conduit.

The device makes both cuts in one operation, saving one-half the time generally consumed on this job. There is a depth gauge preventing excessive cuts being made in the joists and thus weakening them. The tool is easily operated, working on the principle of a plane. The handles are made of aluminum with high grade steel saws and the entire tool weighs less than three pounds.



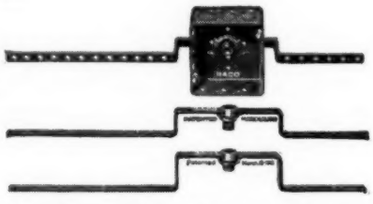
Cable Connector

The Saylor Electric & Manufacturing Company, 1014 Lynn street, Detroit, has announced a new cable connector which is made for armored cable and non-metallic sheathed cable. The cable connector is simple and has a neat appearance. It goes into the box with an easy snap and can be turned to any convenient angle. The tightening of one screw is all that is necessary to lock the cable and connector firmly to the box.



Hangers

Two new lines of offset bar hangers have been placed on the market by the Roach Appleton Manufacturing Company, Chicago. Both devices are patented, one being a deep offset bar hanger, the other a shallow offset bar hanger. The illustration shows offset hanger assembled with a 4-in. square box.



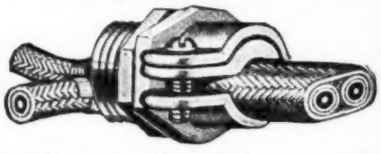
Length of the offset on these two hangers has been shortened from 9¼ inches to 5½ inches, making them adaptable for bracket installations, particularly on outside walls where it is necessary to channel the brick, or on other installations where the studding is set closer than standard. The overall length of the bar has been increased to 18½ inches, this additional length compensating for shortening of the offset.

Non-Metallic Sheathed Cable

The American Wiremold Company, Hartford, Conn., is now manufacturing a non-metallic sheathed cable. The feature of this cable, which has been trademarked "Wireflex", is the sheath over the individual rubber insulated conductor, this sheath, consisting of twisted Kraft cords running spirally in one direction and held in place by the relatively soft cotton binding strands running spirally in the opposite direction. Two or more cables constructed as above are brought together by enclosing them in an outside braid.

Unarmored Assembly Connector

The Rattan Manufacturing Company, New Haven, is making a new connector for non-metallic sheathed cable. As the illustration shows, these connectors when used with the malleable iron wedge shaped insert, or shim, hold the two wire assemblies. For the three wire assemblies, the same conductor is used, but the shim is discarded.



The interesting feature is that one connector fits two shapes of cables.

Receptacles

New porcelain ring receptacles with identified loop terminals have just been released for sale by Pass & Seymour, Inc., Syracuse, N. Y. The manufacturer claims that it is only necessary to loop the wires under the ears of the terminals which are then bent down and solder applied. When this terminal is coated with the usual insulating wax or compound, it makes a reliable mechanical and electrical connection. The great advantage claimed is speed of wiring and the absence of loose parts.

The loop terminals are designated by the shell terminal being nickeled. The body is notched so that the receptacle can be readily located in any position for identified wiring and the notches aid in the draining of the receptacle during a driving storm. These receptacles are manufactured with screw terminals with cupped back and with terminals enclosed by a porcelain button. The standard length of back is about one inch.

X-Ray Reflectors

An Apology to Saint Paul

¶ In our advertisement of X-Ray Floodlighting Projectors which appeared in this magazine last month, a misstatement of fact occurred which credited another city with the illuminated Montgomery Ward & Company Building, which is located in Saint Paul, Minnesota.

¶ This was due entirely to carelessness and "slipped through" unnoticed until too late for timely correction. We hope our many friends in Saint Paul have overlooked our mistake and pardoned our unintentional error.

¶ The Montgomery Ward & Company Building in Saint Paul is without doubt one of the best examples of modern architecture and construction, and would be a great credit to any community. With the aid of one hundred and sixty-two X-Ray Floodlighting Projectors this building is visible each night for miles around, and is a never-to-be-forgotten sight.

¶ Mr. R. D. Myers, Illuminating Engineer of the Northern States Power Company, Saint Paul, who designed and executed this remarkable lighting installation, is indeed to be congratulated on the result of his efforts.

CURTIS LIGHTING, Inc.
1119 West Jackson Boulevard
CHICAGO
31 West Forty Sixth Street, New York
3113 West Sixth Street, Los Angeles

AFTER THE SUN GOES DOWN X-Ray Reflectors

A. C. Starter

A new starter announced by the General Electric Company bears the type designation CR-7055-A-1. It is a reversing primary resistor starter for squirrel cage induction motors. Two three-pole line contactors are provided with this starter. These contactors are electrically and mechanically interlocked and are mounted back-to-back on the panel. A magnetic time interlock provides a predetermined definite time of from one to three seconds between the closing of the line contactor and of the accelerator contactor.

High-Mounting Reflector

A reflector especially designed for high-mounting industrial lighting and lighting through sky lights is being made by the Pittsburgh Reflector Company, under the catalogue Number 1-1000. The new reflector is very concentrating, the bulk of the reflected light being confined to the zone 0 to 40 degrees with a cut-off at approximately 60 degrees above the nadir.

With the reflector is furnished a porcelain mogul socket equipped with special casting at the top, tapped for ½-in. conduit hanger and equipped with a special safety holder. Socket and holder are both supported from the casting, thus relieving the socket and electrical connections from strain. It is for use with 750, 1,000 and 1,500 watt lamps.

Outlet Hole Cutter

The Quandrangle Corporation, 114 Maiden Lane, New York City, is now marketing a tool called "Quandrangle" for cutting outlet holes in plaster and wood. This tool can be used with an electric drill or with a hand brace. When the electric drill is used, a clean-cut hole is cut in less than a minute. With a hand brace, it requires about 3 minutes.

The cutting is done by four saws made especially for this tool by Disston. For plaster walls, the holes are so arranged that screws inserted in two of the three holes provided, are bound to catch the laths.

Control Regulators for Water Heaters

A new device for controlling automatically the operation of electric water heaters has recently been perfected by the Westinghouse Electric and Manufacturing Company. The control is effected by a Spencer disc thermostat which is actuated by the heated water passing over a thin metal plate placed in contact with the thermostat.

This new thermal regulator consists of the Spencer thermostat mounted in a bronze cast pipe housing above the electric heater. When the heater is turned on, the water passes over it and then through the section of pipe containing the regulator.

Soldering Iron

A new electric soldering iron has been developed by the General Electric Company, with the feature that the handle always remains cool. This is accomplished by using a rigid spiral connection between handle and tip. This arrangement is claimed also to give a nicety of balance which prevents wrist fatigue. The heating unit, of the cartridge type, is surrounded by the tip which unscrews for renewal.

Manufacturing Notes

The American Circular Loom Company has put R. W. Mitscher in charge of its Buffalo office. He will also cover the entire New York State territory with the exception of New York City and the Hudson Valley south of Albany.

Henry D. Sears, general sales agent for Weber Wiring devices, is distributing a catalogue covering his wiring device line.

The Southwestern Sales Company, Houston, Tex., has been appointed sales representative of the Fullman Manufacturing Company, for the states of Texas, Oklahoma and Louisiana.

The Erie Malleable Iron Company has made the following appointments to its sales force: R. H. McCormick and W. T. Pratt, Boston; C. S. Crossman, H. S. Altman and G. O. Bowman, New York; H. J. Damm, Cincinnati; E. M. Coverdill, Detroit, and Ben Franklin, Cleveland. Paul L. Bonnett has been appointed advertising manager of the company.

The Appleton Electric Company, of Chicago, has moved its New York office and warehouse from 265 Canal street to 150 Varick street, which gives the company considerably more room for its Eastern stock.

D. J. Finn, who for a number of years has been on the engineering staff of the Edison Lamp Works at Harrison, N. J., has been transferred to the company's Atlanta office where he will serve as illuminating engineer for the entire Southeastern district.

The present building program for the expansion of facilities at various plants and offices of the Westinghouse Electric & Manufacturing Company, will involve an expenditure of $5,525,000, according to the company's announcement. New factory structures are now in course of construction at East Pittsburgh, Mannsfield, O., Detroit, St. Louis, East Springfield, Mass., Sharon, Pa., and Derry, Pa.

New and larger quarters for the Buffalo branch of the Graybar Electric Company have been taken at 77-79 Swan street.